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# *British Birds*

An illustrated  
monthly journal

## *Editors*

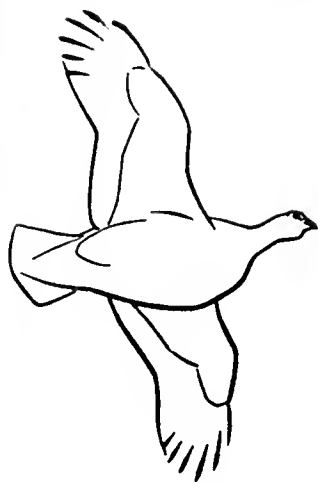
Stanley Cramp

I J Ferguson-Lees

P A D Hollom

E M Nicholson

P F Bonham



## *Photographs*

Eric Hosking

Volume 63

1970

H F & G Witherby

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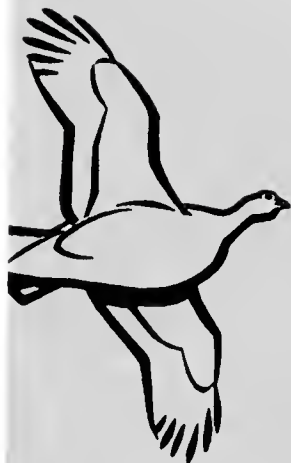
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**Scarce migrants in Britain and Ireland during 1958-67**

**Part 3 Rough-legged Buzzard, Temminck's Stint and Long-tailed Skua**  
Dr J. T. R. Sharrock

**Food of Great Grey Owls in Fenno-Scandia**

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# British Birds

Editorial Address 10 Merton Road, Bedford Telephone 0234 67558

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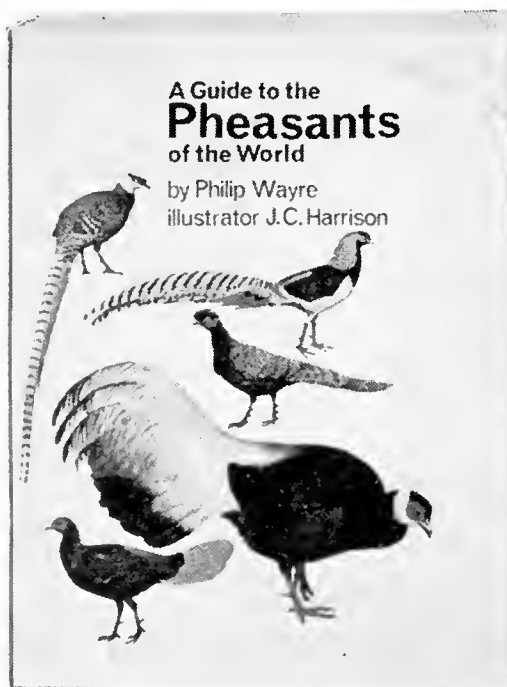
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# *British Birds*

## Editorial

### 'British Birds' and the future

Feeling that the time had come for a thorough, critical reappraisal of the functions and content of *British Birds*, but not wishing to make changes which might prove unnecessary or unwelcome, the editors wrote in July 1969 to a representative selection of readers of diverse interests from different regions to seek their suggestions and comments. Having received 44 replies, containing a large number of useful points, sometimes conflicting, they appointed a small working group to review them and to make recommendations. Two of its four members were editors (E. M. Nicholson, who acted as chairman, and I. J. Ferguson-Lees) and the other two were widely experienced observers with differing interests (Leslie Baker and Dr J. J. M. Flegg). It seems desirable to let all readers have a summary of the group's findings, which have been adopted as policy by the editorial board.

Although there was much agreement with the journal's broad policy and manner of fulfilling its well-established role, most of those who replied to our circular felt that developments in ornithology, bird-watching and conservation during the 1970's would require some redefinition of the aim. In future, *British Birds* is envisaged as a monthly publication for all who take a serious and continuing interest in the field study of birds in Britain and the western Palearctic, bearing in mind that most will have had no training in the sciences involved. Geographically the effect will be to favour quite strongly the hitherto infrequent contributions related to British interest in the ornithology of other countries near-by, in which so many British ornithologists are now often active, throughout Europe and across the Mediterranean in North Africa and the Middle East. While it seemed neither necessary nor desirable to change the main title, there was felt to be a case for adding a subtitle which would reflect this wider range and emphasise that a literal limitation to occurrences in Britain makes even less sense

than in past years when visits and observations overseas were far less frequent and widespread than they have recently become. This modified approach, building on earlier successful treatments of such areas as the Camargue and the Coto Doñana, will seek fully to enlist local ornithologists from each area treated, and to reinforce their efforts from the relevant observations of British and other visitors.

The second slight change of emphasis, fully in line with the earliest traditions of *British Birds*, but also demanded by a review of the respective roles and subject fields of the various British ornithological journals, involves recognising *Bird Study* and *Ibis* as more appropriate places for publication of specialised papers, particularly lengthy ones, of interest primarily to the professional ornithologist. The opportunity should be taken, in addition to increasing the share of papers and reports on ornithology and ecology further afield than Britain, for *British Birds* to produce more review papers showing the progress of ornithology in branches of study of wide interest and to print more editorials dealing with topical trends and problems. Subjects which should be more frequently and fully treated in main papers include identification, distribution, migration, ecology, habits and conservation; there should also be periodical reviews of changes in status of breeding species, both common and scarce. 'News and comment' calls for considerable expansion in order to present an adequate current history of activities in British field ornithology. Photographers should be encouraged to illustrate more dynamic subjects, such as feeding, display, preening and roosting behaviour, these shots being appropriate with the miniature cameras, telephoto lenses and improved stalking techniques of today. At the same time 'Studies of less familiar birds' should include such scarcer British breeding species as Woodlark and Gull Bunting on the one hand and more species not on the British list on the other. Decorative illustrations in line, commissioned in relation to the text, should be additional features to embellish the pages and to encourage bird artists.

The underlying objects are to afford more comprehensive backing over the whole range of interest of British-based field ornithologists, and to encourage fuller and more fruitful contact between amateurs and professionals to the mutual benefit of both. Suggestions which have sometimes been mooted for a merger between ornithological journals were found to command no solid support, but it was recognised that the present range could be maintained only if their distinct respective roles are not merely identified and recognised, but borne out by the appropriate unmistakeable differences in their content, presentation and appeal.

With more editorial time, it should be possible to think ahead and commission more contributions filling wants which might not be covered by reliance on whatever happens to come in. More imaginative



and adventurous planning and performance should encourage a closer relationship between the journal and the ever-growing body of ornithologists with little or no scientific training, but with the demonstrated capability of greatly assisting in ornithological advances through the breadth and diversity of their activities in the field, in co-operative as well as individual investigations. Success in this direction would lead to expanded circulation, and this in turn would make practicable the increased staff and facilities essential for the years ahead. It should also enable us to consider making the journal available through newsagents once more, as a number of readers have suggested.

One conspicuous area for development is in the matter of colour illustration. While *British Birds* has always won appreciation for very high standards of selection and reproduction of valuable photographs, the time will come when inability to provide colour plates freely on the grounds of the much greater cost involved will cripple our visual service by preventing us from maintaining the proud tradition of letting our readers see a good sample of the best ornithological pictures in existence within our scope. In hard economics it will be essential to double circulation over the next few years in order to justify the maintenance, on a basis of colour photography, of comparable standards of illustration to those which we have provided during the long innings of black-and-white.

The fact must be faced that the circulation of *British Birds* has failed recently to increase proportionately to the growth of interest in the subject and to the rise in the cost of adequately covering the expanding and diversifying material within our scope. While many reasons could be cited, some common to periodicals in general, there are two of great importance which it is within the power of ourselves and our readers to remedy. We can and we must adjust our contents and coverage, without departing from our traditional role, standards and basic appeal, so as to make the journal even more indispensable to those who wish to keep abreast of British field ornithology and to share in its many rewarding achievements, too many of which have hardly found a place in our pages within recent years. Reciprocally, we look confidently to our readers to help in persuading non-subscribing fellow ornithologists to give a trial to the newly overhauled journal. *British Birds* will be able to fulfil its new role in the 1970's only if its readership support is widened. We are well aware that to achieve this will require regular publication in future. We have fallen far short in recent years, especially in 1969, and we are most grateful for the continuing loyalty of our readers in a difficult period. The basic cause of these delays was the increasing pressure on the executive editor and his secretary at Bedford. Fortunately, the opportunity has now occurred to ease this situation.

In an editorial in August 1966 we announced an ambitious project

for a new work on *The Birds of the Western Palearctic*. This had been welcomed at a meeting held during the International Ornithological Congress at Oxford in July 1966 and it was planned to make a start as soon as the detailed arrangements for financing the editorial work had been completed. In the event, the economic and financial climate proved unfavourable to raising all the necessary funds and it was possible to conclude a firm agreement with the publishers, the Delegates of the Oxford University Press, only late in 1969. We are deeply indebted to them for their continued sympathy and understanding, and to the Pilgrim Trust and the British Ornithologists' Union who have provided invaluable additional financial support. Work has now begun on *The Birds of the Western Palearctic* with a full-time chief editor, Stanley Cramp, who will shortly be joined on a half-time basis by I. J. Ferguson-Lees. The latter will continue as the executive editor of *British Birds*, but will now be aided by P. F. Bonham, who began his duties as assistant editor on 1st February 1970. It is hoped that this strengthening of the editorial staff at Bedford will enable *British Birds* to achieve both its ambitious new role and regular publication.

Since the original announcement of *The Birds of the Western Palearctic*, there have been changes both in the editorial team and in the area to be covered. To our great regret, Dr D. W. Snow found that his new responsibilities at the British Museum (Natural History) precluded his participation. On the other hand, four new members of the editorial board have been appointed: P. J. Olney, Curator of Birds at the Zoological Society of London, K. E. L. Simmons, at present completing a Ph.D. thesis at the University of Bristol, and Jan Wattel, assistant to Professor Dr K. H. Voous at the Free University of Amsterdam (each of whom will be responsible for one or more sections of the text throughout); and Robert Gillmor (art editor). The editorial board therefore now consists of Stanley Cramp (chief editor), I. J. Ferguson-Lees, Robert Gillmor, P. A. D. Hollom, E. M. Nicholson, K. E. L. Simmons, Robert Spencer, Professor Dr K. H. Voous and Jan Wattel. Owing to pressure of other commitments, E. M. Nicholson resigned as chairman of the board of directors of West Palearctic Birds Limited, the parent non-profit organisation, though he remains a member. He is succeeded as chairman by Stanley Cramp, and Robert Spencer has also joined the board. In response to the strong appeals made at the International Ornithological Congress in Oxford in 1966, the eastern boundary of the area covered by the work has been extended to include all of European Russia, so that the whole of Europe, most of North Africa north of 20°N, and the Middle East (including Turkey, Iraq and Jordan) will now be included.

In considerable portions of this extended area (especially, for

example, some Mediterranean islands, and parts of the Middle East and North Africa) there is a paucity of information, not only on the present distribution of many species, but also on their basic ecology, breeding and habits. Amateur ornithologists have visited these areas in increasing numbers in recent years. It is our earnest plea that any who may have unpublished information will make this available, preferably by publishing in the appropriate journals or by sending it to the compilers of any new faunal lists which may be in preparation or envisaged. If this is not possible, or if publication is likely to be delayed, the editors of *The Birds of the Western Palearctic* will be glad to receive such data, which should be sent to Stanley Cramp, 32 Queen Court, London WC1N 3BB.

While there is no formal link between this journal and *The Birds of the Western Palearctic*, we are confident that the intimate personal links on an informal basis will work to the advantage of both. H. F. Witherby's initiative in planning and producing *The Practical Handbook* and later *The Handbook of British Birds* undoubtedly gave the journal a sense of purpose and of achievement which contributed much to its enhanced status and to its power to give effective leadership and service for the benefit of British ornithology. Although, being on a more than European scale and closely involved with several other sciences, *The Birds of the Western Palearctic* is appropriately sponsored by a great university publishing house, the names of its editorial team should be sufficient guarantee that the kind of links which H. F. Witherby created for *The Handbook* will not be neglected.

We are keenly aware of all our shortcomings, which we are striving to make good, but we ask our readers and indeed all British field ornithologists to realise that the strength and success and standards of *British Birds* must reflect and depend upon the degree of support which it is given through thick and thin, since it is no mere magazine but a proven vital agent in maintaining the health and progress of British ornithology. It is on that account, and not because we claim any special merits for ourselves, that we feel justified in requesting that a special effort be made, in tune with our own, to raise the level of circulation and therefore the usefulness of the journal, to enable it to play a fuller part during the critical 1970's.

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We take this opportunity of mentioning another small change. The panel of experts which advises the editors on the selection of the 'Notes' has until recently consisted of Dr J. S. Ash, Derek Goodwin and K. E. L. Simmons. Dr Ash has now taken a post in Ethiopia, however, and his place has been filled by Dr C. H. Fry, of the Natural History Department, Marischal College, Aberdeen, whose ornithological experience extends to Europe and Africa.

# Scarce migrants in Britain and Ireland during 1958-67

J. T. R. Sharrock

## Part 3 Rough-legged Buzzard, Temminck's Stint and Long-tailed Skua

The first two parts of this series (*Brit. Birds*, 62: 169-189, 300-315) dealt with six species which have widespread or southern breeding distributions in Europe. This third part turns to three with arctic breeding distributions, the European portions of which are virtually confined to Fenno-Scandia and north Russia—Rough-legged Buzzard *Buteo lagopus*, Temminck's Stint *Calidris temminckii* and Long-tailed Skua *Stercorarius longicaudus*. Attention must again be drawn to the general introduction to the series (*Brit. Birds*, 62: 169-174), which included points of importance in the consideration of each species.

### Rough-legged Buzzard *Buteo lagopus*

It was only recently that, prompted by exceptional numbers during the winter of 1966/67, Scott (1968) discussed the records of Rough-legged Buzzards in Britain, and this section can therefore be fairly brief. Rough-legged Buzzards are largely winter visitors to Britain and even those on passage are probably seen at several different localities as they move through the country. For these reasons, it is more difficult to determine the number of separate birds involved than it was in the cases of the other six scarce migrants already dealt with. It is probable, however, that rather less than 269 individuals were recorded in the ten years.

Records covered the period from mid-August to May, but by far the majority of first sightings were in October and November (fig. 35). Only three of the 42 seven-day periods between 13th August and 3rd June were without a record of a 'new' individual and, since it seems most unlikely that there were continuing arrivals throughout this time,

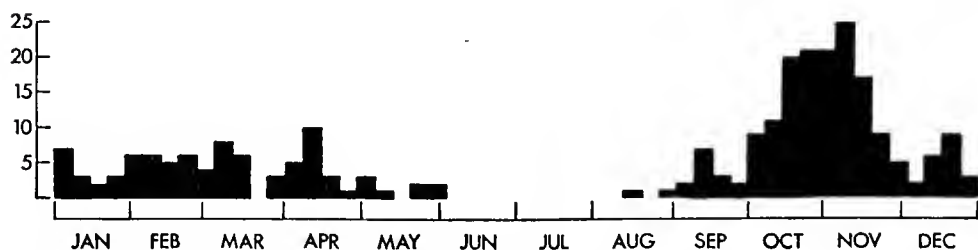


Fig. 35. Seasonal pattern of Rough-legged Buzzards *Buteo lagopus* in Britain and Ireland during 1958-67



it is clear that wintering birds wandered a good deal during their stay. This makes it exceedingly difficult to decide how many were involved each year, but the error from this source is likely to be fairly constant from year to year so that it is at least possible to obtain comparative figures. Since the period covered by this paper is 1st January 1958 to 31st December 1967, full totals cannot be given for the 1957/58 and 1967/68 winters and so fig. 36b shows the totals for each of the nine winters 1958/59 to 1966/67. This clearly demonstrates the exceptional nature of the influx in 1966/67, with 40% of all the records in that one winter. Williamson (1961) noted that there were more Rough-legged Buzzards in evidence during October and November 1960 than there had been for several years and that winter (1960/61) shows as the second highest peak in the nine years, but with fewer than half the number of 1966/67. The influx at this time was documented by Ferguson-Lees and Williamson (1960, 1961), whilst influxes in previous years were listed by Scott (1968) and *The Handbook*.

The number actually wintering in Britain each year is a matter for speculation. Scott (1968) defined wintering birds as individuals which remained in one area throughout December to February, 'or at least for periods of over four weeks'. On this basis, he estimated that at least 57 and probably 67 individuals wintered in Britain in 1966/67. Defining

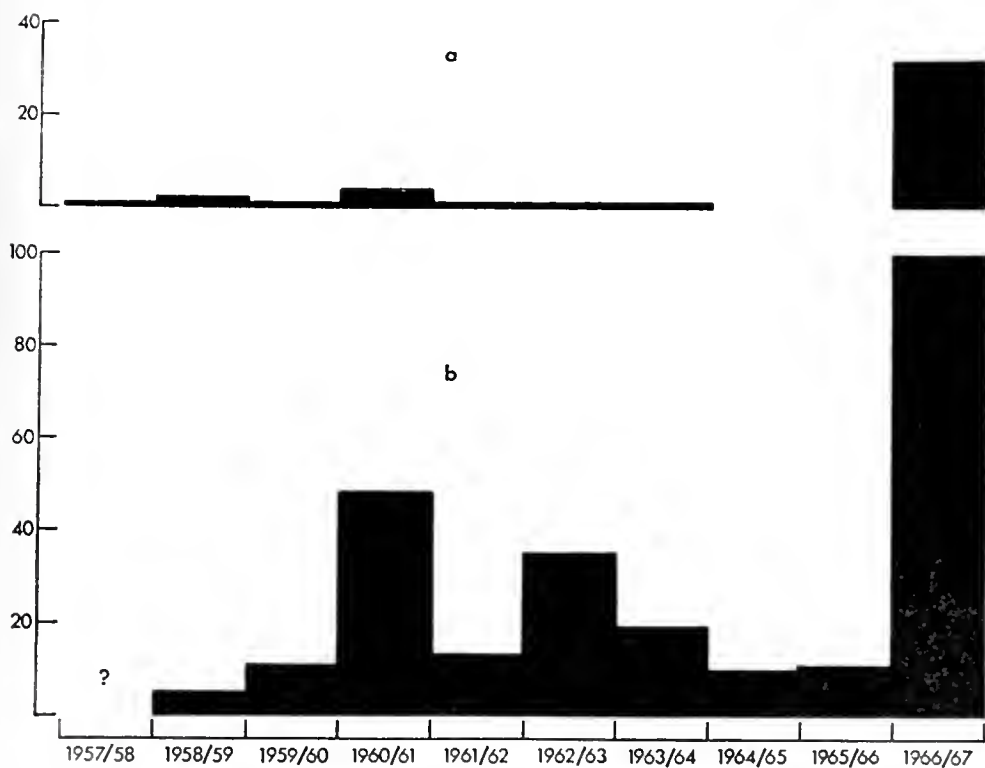


Fig. 36. Annual patterns in Britain and Ireland of (a) wintering Rough-legged Buzzards *Buteo lagopus* from 1957/58 to 1966/67 and (b) all Rough-legged Buzzards from 1958/59 to 1966/67

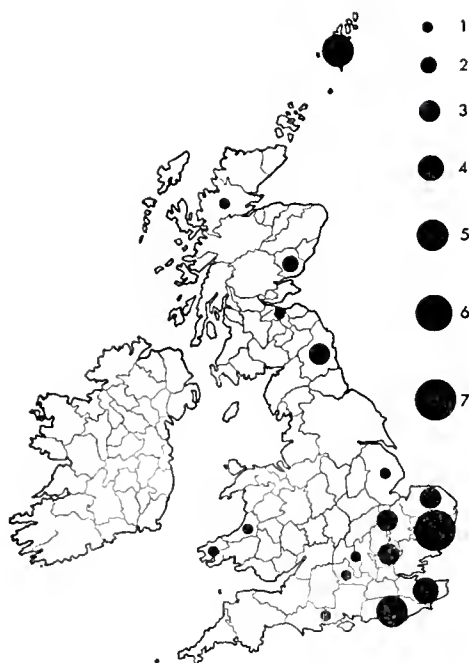


Fig. 37. Distribution by counties of wintering Rough-legged Buzzards *Buteo lagopus* in Britain and Ireland from 1957/58 to 1966/67

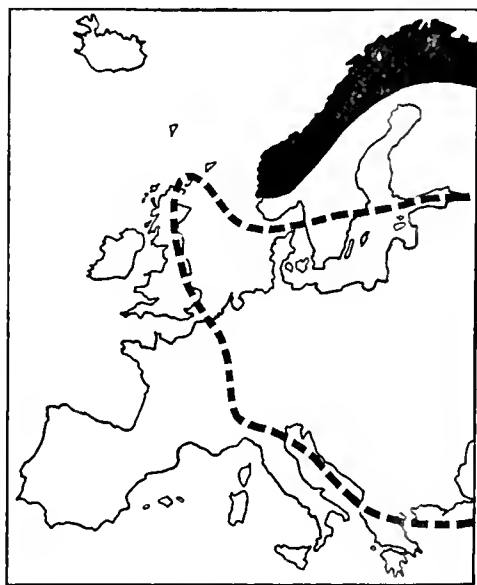


Fig. 38. European distribution of Rough-legged Buzzards *Buteo lagopus* with the breeding range shown in black and the normal wintering area enclosed by a dotted line (reproduced, by permission, from the 1966 edition of the *Field Guide*)

wintering individuals rather differently, as those staying in an area for at least two weeks, including periods in both of the two years (i.e. minimum requirements would be 19th December-1st January or 31st December-13th January), one arrives at a total of about 32 individuals wintering in Britain in 1966/67 and only eleven in the previous nine years combined (fig. 36a). The distribution of these 43 is given in fig. 37.

It is well known that the numbers of Rough-legged Buzzards in a breeding area fluctuate according to the population levels of Lemmings *Lemmus lemmus* and other Arctic rodents (see Curry-Lindahl 1961). Scott (1968) was able to show that the exceptional influx in Britain in 1966/67 was probably associated with a scarcity of small mammals in northern latitudes in 1966 and a consequent southwards and westwards shift in the centre of the Fenno-Scandian breeding range (fig. 38), from which area he postulated that the British birds originated. The 1960/61 influx coincided with a peak in the Swedish Lemming population in 1960 and 1961—though, except in a few areas, the Swedish Rough-legged Buzzard population was apparently not in phase (Curry-Lindahl 1961). The presence of wintering Rough-legged Buzzards in Britain is probably also influenced by food availability. Their main diet here appears to be Rabbits *Oryctolagus cuniculus*, but Baxter and Rintoul (1953) suggested a correlation in Scotland between wintering numbers and vole plague years, this also influencing the distribution within Scotland.

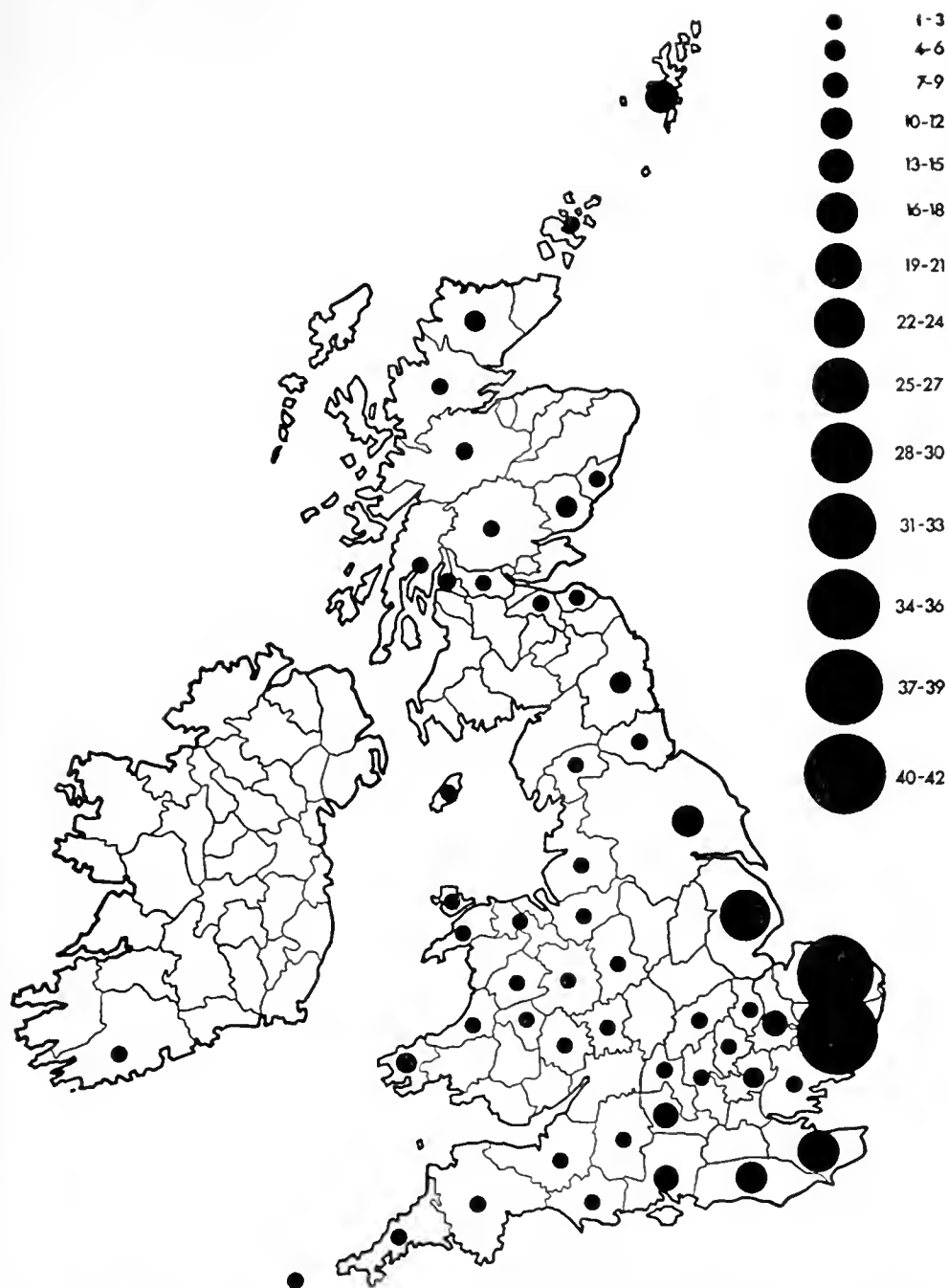


Fig. 39. Distribution by counties of Rough-legged Buzzards *Buteo lagopus* in Britain and Ireland during 1958-67

The geographical distribution during the ten years within Britain and Ireland (fig. 39) is strongly biased by the large numbers in the single winter of 1966/67, when there was a higher proportion than usual in south-east England. Nevertheless, it clearly shows the concentration in Suffolk, Norfolk and Lincolnshire, these three counties accounting for no less than 39% of all the records in the ten years. One suspects,

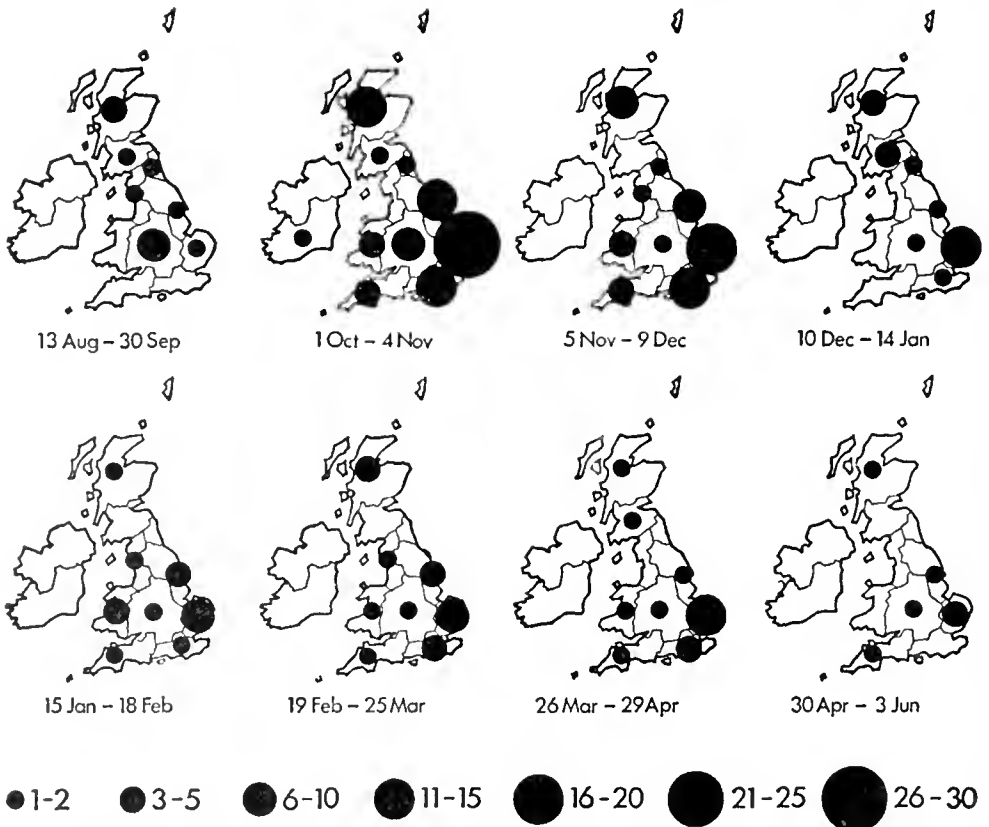


Fig. 40. Regional distribution in eight periods from autumn through to spring of Rough-legged Buzzards *Buteo lagopus* in Britain and Ireland during 1958-67

however, that there may have been more Scottish records than those shown, for in some areas the species is regarded as regular and occurrences are perhaps not always reported. On the other hand, Rough-legged Buzzards are exceedingly rare birds in Ireland, with only 26 records altogether up to the end of 1965 (Rutledge 1966) and only one in the ten years. This is rather surprising, for there were a few records in most counties in the English Midlands, south-west England and Wales.

New arrivals appear to be so clouded by individuals wandering within Britain that it is difficult to determine a clear pattern (fig. 40). The earliest ones, however, were confined to England north of a line from the Thames estuary to the Bristol Channel. New records were most widespread and numerous in October, November and early December, the only region with none in this period being the north of Ireland. The most static time was 10th December to 14th January, when there were reports of 'new' birds (presumably wandering wintering individuals) only from the main regions of wintering. From mid-January to late March such new sightings became rather more widespread again (perhaps due to winterers wandering more widely as food supplies were reduced), but in late March and April the majority were in East Anglia and south-east England; these possibly represented a spring passage.

**Temminck's Stint** *Calidris temminckii*

Considering that Temminck's Stints breed commonly as close to Britain as Scandinavia south to a latitude level with Shetland (fig. 41), they are remarkably scarce in Britain and Ireland. A total of only 291 was reported during the ten years, an average of 29 per year, which is only five more than the average of the commonest Nearctic vagrant, Pectoral Sandpiper *C. melanotos*. Records were most frequent in autumn,

Fig. 41. European distribution of Temminck's Stints *Calidris temminckii* with the breeding range of this summer visitor shown in black (reproduced, by permission, from the 1966 edition of the *Field Guide*)



64% compared with 36% in spring (fig. 42). The spring passage extended from late April to the end of June, but 91% were in May, with the peak during 14th-20th. The autumn passage was much more protracted, extending from mid-July to mid-November, with the peak during 3rd-9th September. The extended passage in autumn is shown by only 59% occurring during the peak five weeks (20th August-23rd September), compared with the 91% during the peak five weeks in spring.

The spring records were mainly in the eastern half of England, over 40% of them in Norfolk, Kent and Suffolk, but there was still a rela-

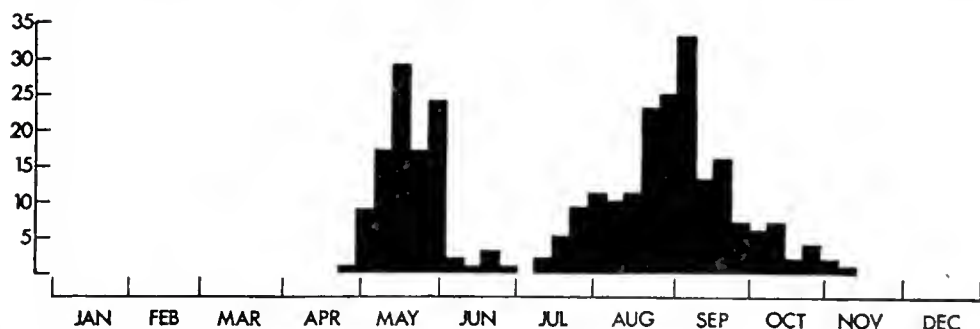


Fig. 42. Seasonal pattern of Temminck's Stints *Calidris temminckii* in Britain and Ireland during 1958-67



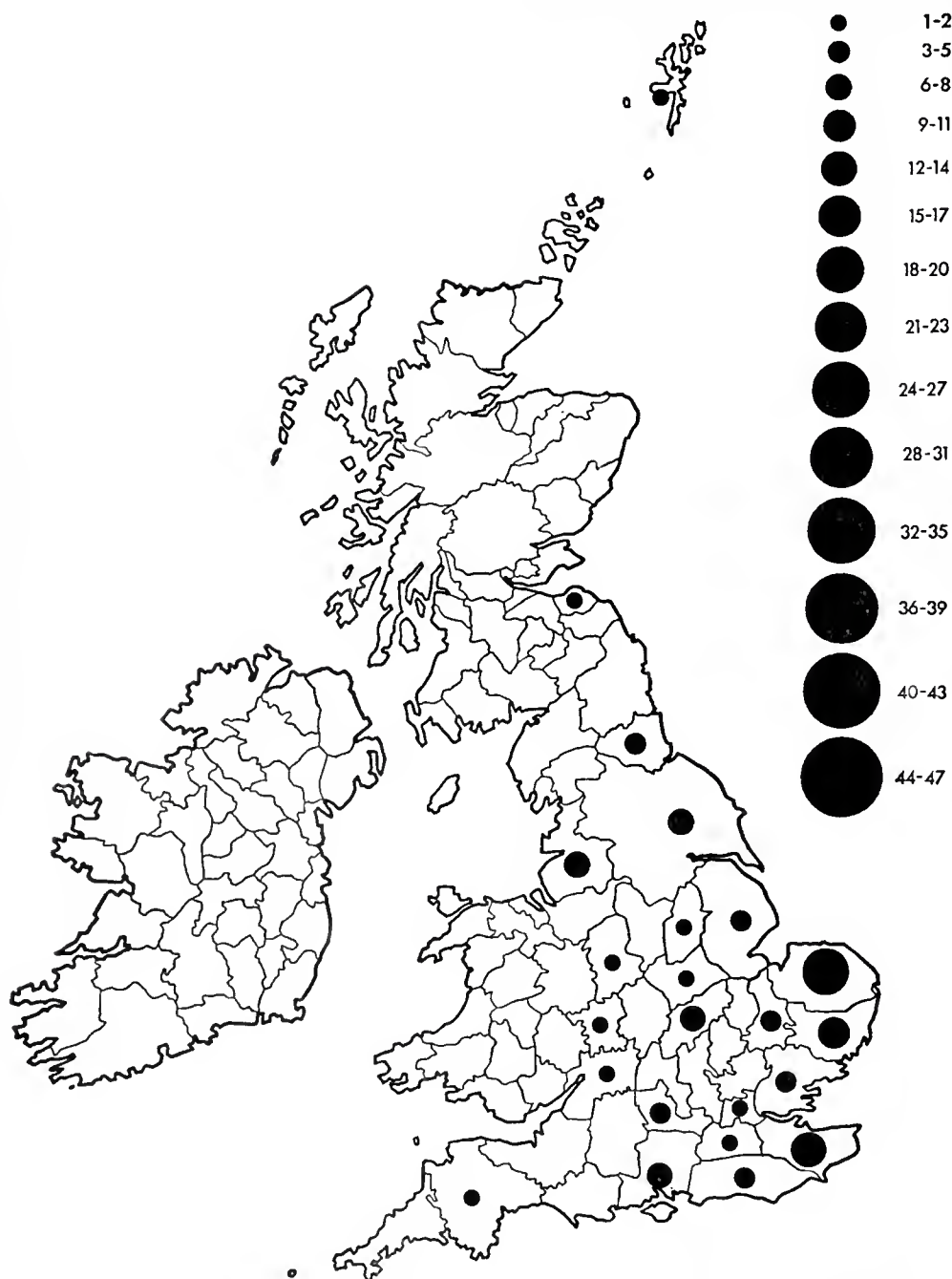


Fig. 43. Distribution by counties of spring Temminck's Stints *Calidris temminckii* in Britain and Ireland during 1958-67

tively large proportion (17%) inland in the Midlands (fig. 43). Hoopoes *Upupa epops* are well known as scarce migrants inland, yet only 11% of the spring records of that species were in the Midlands (table 1). The autumn distribution of records was similar to that in spring, but, while there was an even higher proportion (almost 50%) in the three main counties of Kent, Suffolk and Norfolk, the others were more wide-

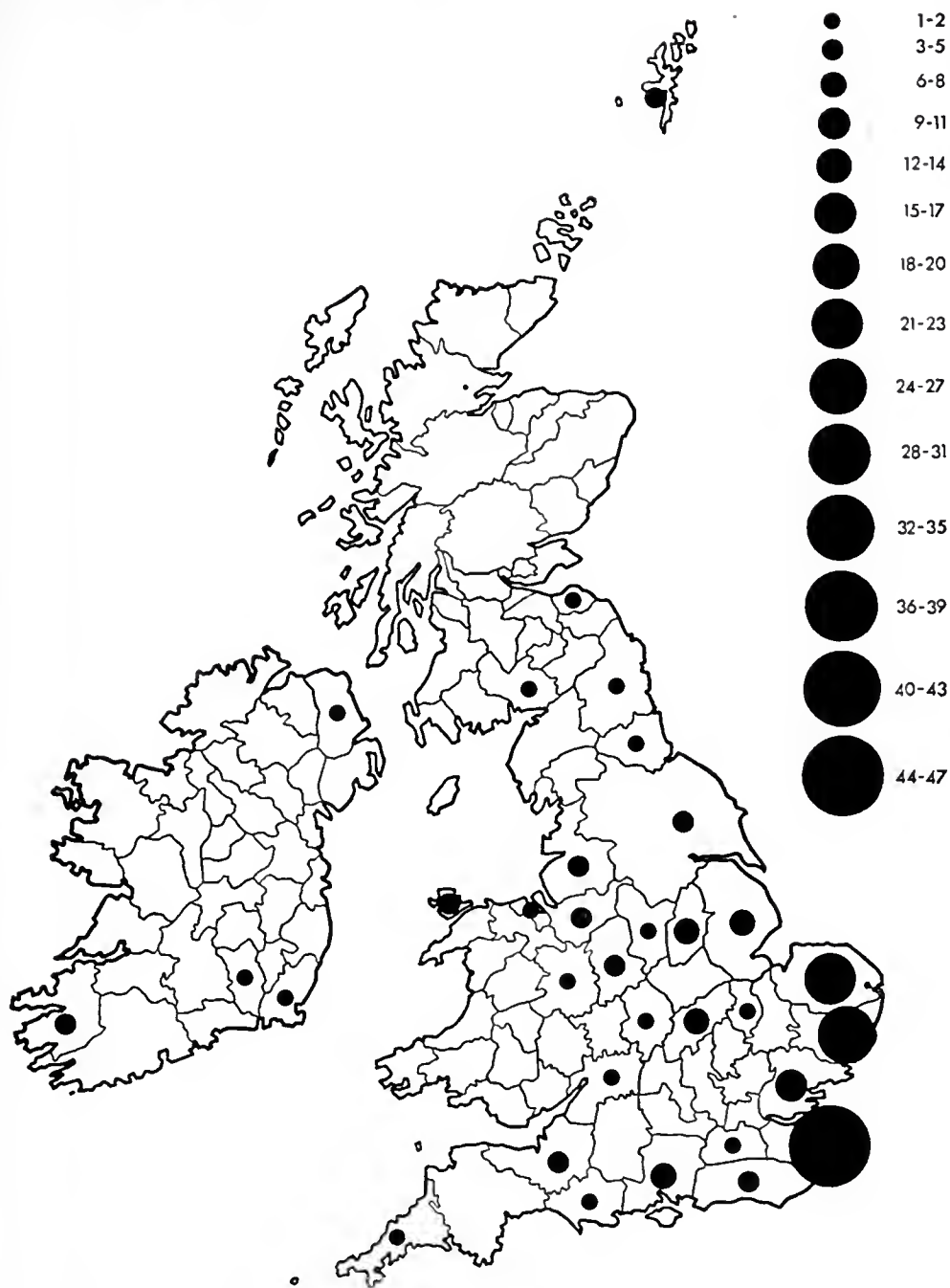


Fig. 44. Distribution by counties of autumn Temminck's Stints *Calidris temminckii* in Britain and Ireland during 1958-67

spread, with a few in Ireland and Wales (where there was none in spring) and more in south-west England (fig. 44).

The numbers occurring annually in Britain and Ireland varied from two to 16 in spring (with peaks in 1966, 1964 and 1961) and from ten to 26 in autumn (with peaks in 1961, 1965 and 1963) (fig. 45). These annual numbers may be compared with those of some other northern waders.

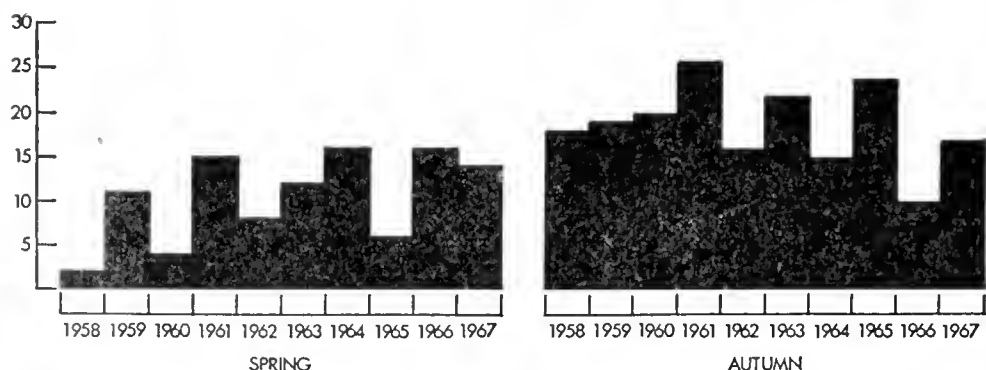


Fig. 45. Annual pattern of Temminck's Stints *Calidris temminckii* in Britain and Ireland during 1958-67 with the spring and autumn records shown separately

The Little Stint *C. minutus* has a more northerly and easterly breeding distribution than Temminck's, yet occurs here in autumn in far larger numbers. The Broad-billed Sandpiper *Limicola falcinellus* has a Scandinavian breeding distribution similar to that of Temminck's Stint, yet is much rarer in Britain. The breeding distribution of the Curlew Sandpiper *C. ferruginea* is well to the east, in arctic Asia, yet occurs on autumn passage in numbers similar to those of the Little Stint. The numbers of the two rarer species and rough assessments of the two commoner species are given in table 4. There is virtually no relation-

Table 4. Records of four northern waders—Temminck's Stint *Calidris temminckii*, Broad-billed Sandpiper *Limicola falcinellus*, Little Stint *C. minutus* and Curlew Sandpiper *C. ferruginea*—in Britain and Ireland during 1958-67

The assessments of the last two species are taken from 'Recent reports' in this journal: whilst not pretending to be complete, this is the only readily available source of such information

	SPRING		AUTUMN			
	Temminck's Stint	Broad-billed	Temminck's Stint	Little Stint	Broad-billed	Curlew Sandpiper
1958	2	0	18	'normal'	0	'extremely scarce'
1959	11	1	19	'good numbers'	0	'avalanche'
1960	4	0	20	'unprecedented'	2	'possibly above average'
1961	15	0	26	'fairly numerous'	2	'below average'
1962	8	1	16	'rather scarce'	1	'rather scarce'
1963	12	2	22	'high but less than 1960'	1	'above average'
1964	16	0	15	'possibly above average'	0	'possibly above average'
1965	6	0	24	'at least one big influx'	0	'at least one big influx'
1966	16	0	10	'not particularly numerous'	0	'not particularly numerous'
1967	14	0	17	'large passage'	2	'large passage'



ship between the records of Temminck's Stint and the other three species (though Curlew Sandpipers and Little Stints do appear to show some degree of correlation). Even though rarer in Britain, the numbers of Temminck's Stints fluctuate far less than those of Little Stints and Curlew Sandpipers. This suggests that the rarer species is a regular migrant with meteorological conditions not of prime importance in its occurrence and also that it may be less subject to violent population fluctuations than are the other two.

The earliest spring arrivals were in south-east England and, particularly, the Midlands in the first week of May (fig. 46). By the second week of May there were equal numbers in south-east England, East Anglia and the Midlands. A week later, the time of the main peak, the majority were in East Anglia and south-east England, with scattered records north to southern Scotland. During the last two weeks of the peak passage most were in East Anglia and the Midlands, with the proportion in south-east England dropping. The pattern suggests that the early arrivals may be mainly genuine passage migrants (presumably the westernmost part of the population) on their way north, whilst the later ones may include some which have been displaced westwards from more easterly areas, as well as a continuation of those on normal

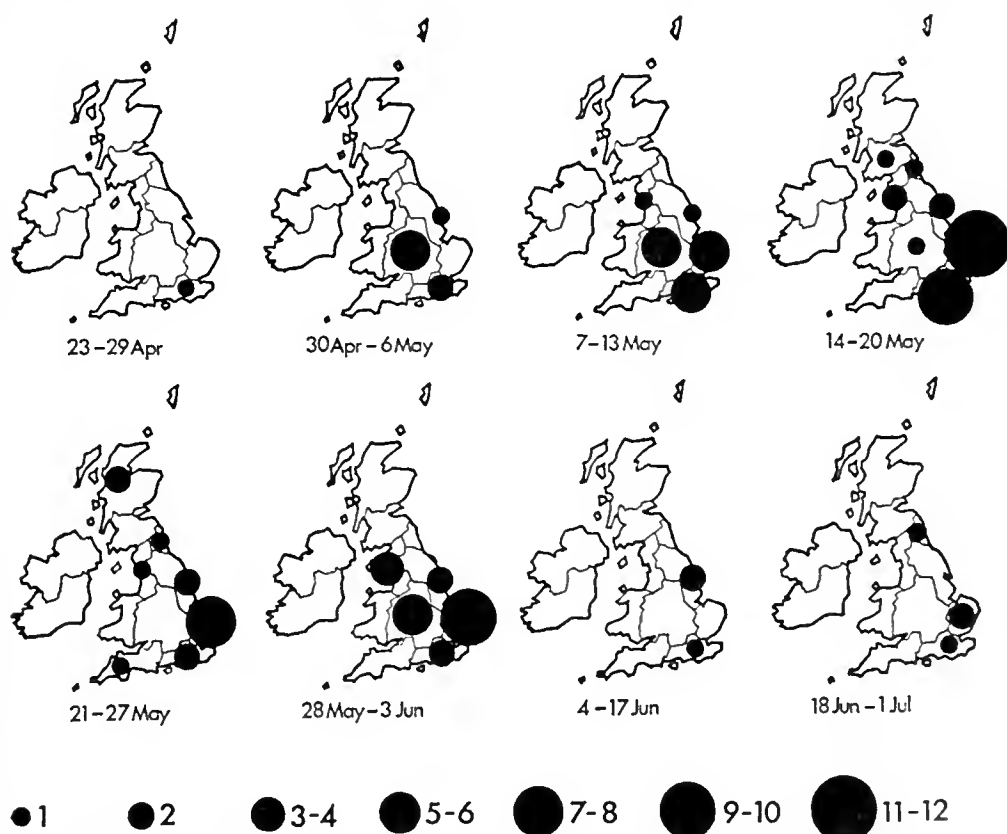


Fig. 46. Regional distribution in eight periods of spring Temminck's Stints *Calidris temminckii* in Britain and Ireland during 1958-67

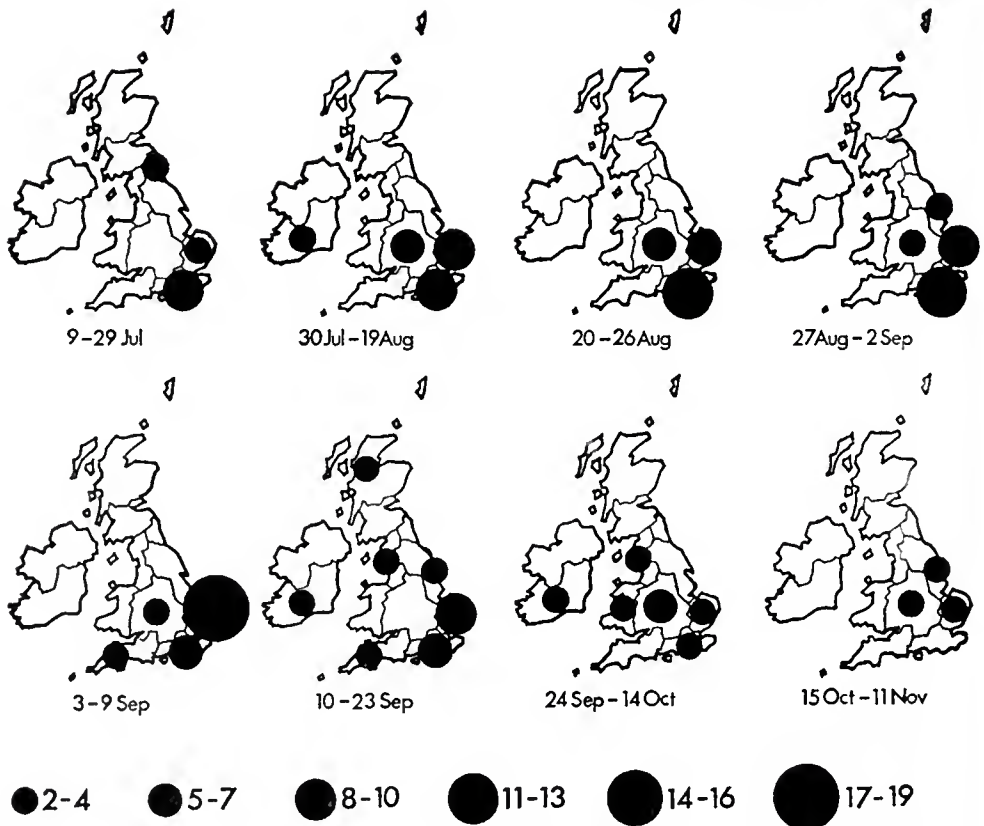


Fig. 47. Regional distribution in eight periods of autumn Temminck's Stints *Calidris temminckii* in Britain and Ireland during 1958-67

passage. Certainly the occurrences at the same localities on similar dates for two, three or even four successive years, preceded and followed by several years without any records there, suggests that the same individuals may be involved and confirms the proposition of a genuine passage of birds following set routes.

The long autumn passage shows a less clear pattern than that in spring. The only features of note are that the inland records in the Midlands made up a smaller proportion than in spring, but reached their peak earlier (20th-26th August) than the main concentration in East Anglia (3rd-9th September) (fig. 47). As with the spring records, this tends to suggest that those in the Midlands were genuine passage migrants originating from the more westerly portions of the population, whilst those later in East Anglia were from more easterly and northerly portions. The situation is confused, however, for the peak in south-east England (20th August-2nd September) preceded that in East Anglia and, due to the relatively small numbers involved, the apparent differences may not be significant. The relative numbers in Norfolk and Kent in spring and autumn (more in Norfolk in spring and more in Kent in autumn) were also the reverse of what might logically be expected and one really requires more data before drawing firm conclusions.

Long-tailed Skua *Stercorarius longicaudus*

The Long-tailed Skua is by far the rarest of the four skuas in Britain and Ireland. There was a total of only 171 records in the ten years and this species is thus the rarest of the 15 scarce migrants which are included in this paper but which are not considered by the Rarities Committee. Field-separation from small, long-tailed Arctic Skuas *S. parasiticus* is not easy, however, and some may go undetected (on the other hand, some 'Long-tailed Skuas' may have been misidentified Arctics). Immatures are even more difficult and it is probable that most of the 171 Long-tailed Skuas were adults, though the age was published in only 51 records (35 adults and 16 immatures).

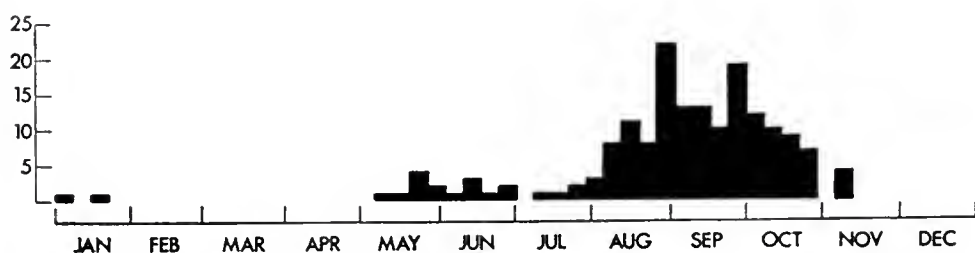


Fig. 48. Seasonal pattern of Long-tailed Skuas *Stercorarius longicaudus* in Britain and Ireland during 1958-67

All but 17 of the records were in autumn, from July to early November (mainly August-October), with marked peaks at the end of August and the end of September (fig. 48). There were 15 in May or June and two in January. The 15 spring records were mainly in two areas, south-western Britain (five) and northern Scotland (six), the other four being scattered along the British east coast (fig. 50). The much more numerous autumn records were mainly on the English east coast, with almost four times as many in Norfolk as in any other county and over two-thirds of the total in the four contiguous counties of Durham, Yorkshire, Lincolnshire and Norfolk (fig. 49).

The Long-tailed Skua has an arctic breeding distribution, mainly between the 33° and 59°F July isotherms (Voous 1960), with the westernmost part of the population as close to Britain as southern Norway (fig. 51). There is known to be a close relationship with the roughly four-year cycle of Lemmings and other northern rodents, but the British and Irish records in the ten years do not appear to reflect this at all, the autumn totals varying from seven to 24 and the peak years being 1959, 1961, 1963, 1966 and 1967 (fig. 52). Neither is there any apparent correlation with the numbers of Rough-legged Buzzards (which have a very similar breeding distribution and also fluctuate with the Lemming population), for these reached peaks in the autumns of 1960, 1962 and 1966 (fig. 36b).

The wintering area of the Long-tailed Skua is still not known for

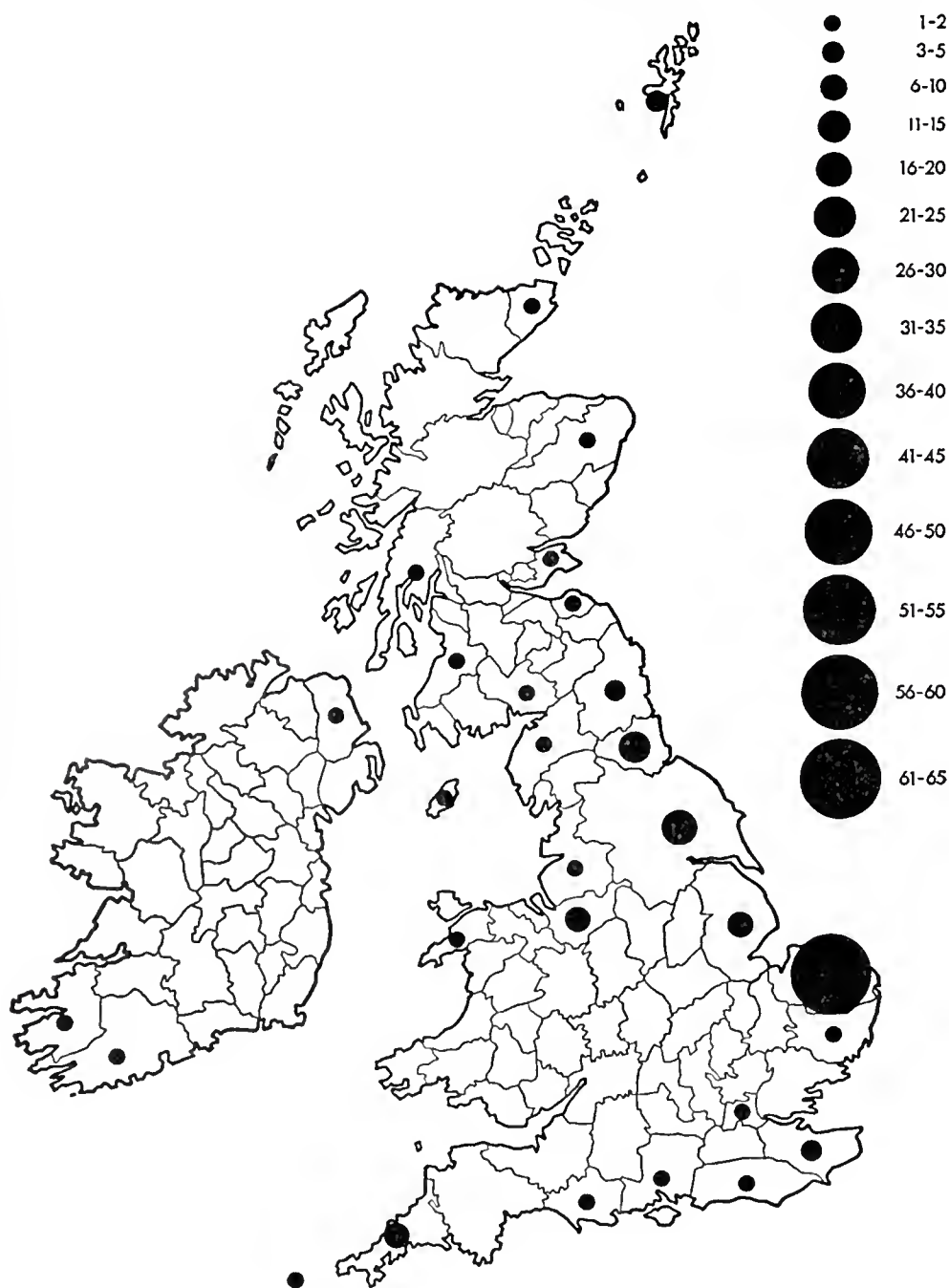


Fig. 49. Distribution by counties of autumn Long-tailed Skuas *Stercorarius longicaudus* in Britain and Ireland during 1958-67

certain, but is thought to lie far to the south, possibly off South America (Bourne 1967), making the two January records (Anglesey in 1963 and Norfolk in 1967) highly remarkable. Ship observations have shown (1) that, whereas the passage of Great Skuas *S. skua* is relatively evenly spread across the Atlantic, the other three European skuas—Arctic, Pomarine *S. pomarinus* and Long-tailed—are more concentrated

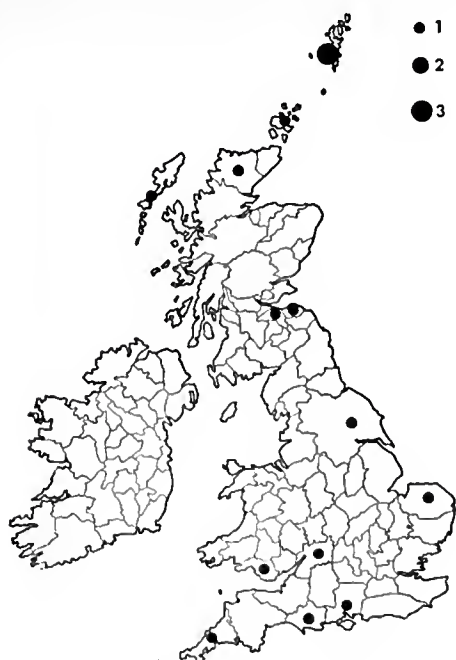


Fig. 50. Distribution by counties of spring Long-tailed Skuas *Stercorarius longicaudus* in Britain and Ireland during 1958-67

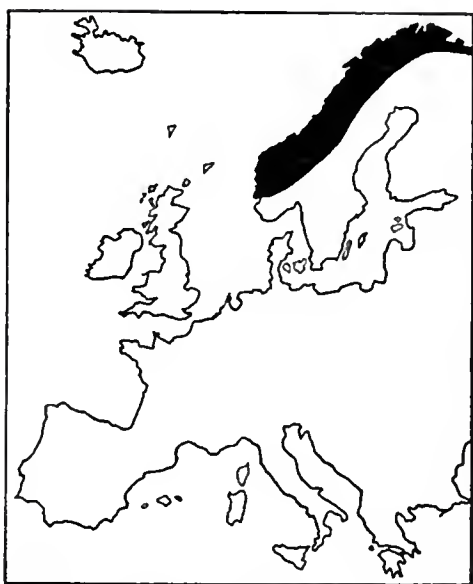


Fig. 51. European distribution of Long-tailed Skuas *Stercorarius longicaudus* with the breeding range of this summer visitor shown in black (reproduced, by permission, from the 1966 edition of the *Field Guide*)

between 30° and 50°W, with the last-named the most westerly of all in both spring and autumn (Tuck 1966); (2) that Long-tailed Skuas are the least often seen, but when they do occur they are often in flocks of up to 50 or more and sometimes as many as 160 have been recorded in a single day (Aikman 1966); and (3) that autumn passage seems to be quite prolonged, from July well into September (Sage 1968), whereas spring passage in the north Atlantic is mostly in May (with fewer in April and June).

Many of the observations in the western North Atlantic undoubtedly refer to birds from arctic Canada, but most authors have assumed that the Old World populations follow a similar west Atlantic route. For



Fig. 52. Annual pattern of Long-tailed Skuas *Stercorarius longicaudus* in Britain and Ireland during 1958-67 with the spring and autumn records shown separately



instance, Bell (1965) postulated that the European population passes between Iceland and the Hebrides, far out to sea, to join birds from Greenland and eastern North America in following a common route southwards in autumn; and that the reverse route is taken in spring, the Finnish population arriving overland from the west across the north Norwegian mountains and not via the Baltic. He and others have also drawn attention to the relatively high incidence of inland records in Europe and have suggested that this is a reflection of the weakness of this species, compared with the other skuas, in stormy conditions, though it might only reflect the species' use of overland routes on occasions. The largest single authenticated 'wreck' of Long-tailed Skuas ever recorded in British waters occurred on the Yorkshire coast on 7th-19th October 1879 (Nelson 1907), but the grand total for that period was only about 30 individuals, compared with 5,000-6,000 Pomarine Skuas at the same time.

The great preponderance of Norfolk records (fig. 49) might be the result of displacement southwards by northerly gales, but, if so, it poses a problem: if the species is thus prone to displacement in stormy conditions, it is surprising that so few have been recorded in autumn in northern Scotland and the north of Ireland. In this connection, the observatories at Malin Head and Tory Island, Co. Donegal, and The Mullet, Co. Mayo, are primarily sea-watching stations, yet none has produced a single record. Some time ago it was pointed out that the violent westerly weather of September 1950 did not result in any Long-tailed Skuas being recorded in Britain or Ireland (Anon 1952). Further, 1,628 hours of systematic timed sea-watching was carried out in the months August-October at Cape Clear Island, Co. Cork, in 1959-67 and totals of 2,106 Great, 292 Arctic and 54 Pomarine Skuas were recorded, but not one Long-tailed, despite frequent westerly or south-westerly gales bringing spectacular sea-passage of other species. The only conclusion must be that they are far commoner in autumn in the North Sea than they are in the North Atlantic, especially considering the occurrence in Britain and Ireland of over 500 Nearctic waders during the ten years (about three times as many as the total of Long-tailed Skuas in the same period). If Long-tailed Skuas were really such weak fliers, one would expect many more to be recorded on the western coasts. There is no longer the excuse that these areas are under-watched, for due to the establishment of the observatories already mentioned and the activities of the Seabird Group's 'Atlantic Seawatch Scheme', there has probably been more systematic sea-watching carried out in western Ireland than anywhere else in Britain and Ireland.

There appears to be little or no evidence for any passage of Long-tailed Skuas through the English Channel: sea-watching at Dungeness, Kent, produced only one record in 1958-67; there was also only one at Cap Gris Nez, France, in the three years 1965-67; and very few are

recorded in the Biscay area or off north-west Spain (e.g. Pettitt 1969), where the other three species are seen in large numbers. It seems unlikely, therefore, that there is any substantial passage either through the English Channel or overland from Scandinavia across south-eastern England to Finisterre. This makes the protracted period of occurrences and relatively large numbers in autumn in the southern North Sea (on the north Norfolk coast) rather perplexing, unless it is postulated that, after the end of the breeding season, part at least of the population is present for about two months feeding in the northern North Sea. Bell (1965) suggested that those seen on the English and Scottish east coasts in autumn were likely to be Fenno-Scandian in origin. The extended period over which records occur, together with their relative absence from the other north-facing parts of Britain and Ireland, indicates, however, that they may involve individuals which stay feeding in the area rather than ones truly on passage and that, therefore, there is every reason to suspect that they may include some from further east, in Asiatic Russia. The likeliest situation is that migrant Long-tailed Skuas delay for a considerable time in the rich feeding grounds of the northern North Sea, but that the population there is always changing, originating from further and further east as the autumn pro-

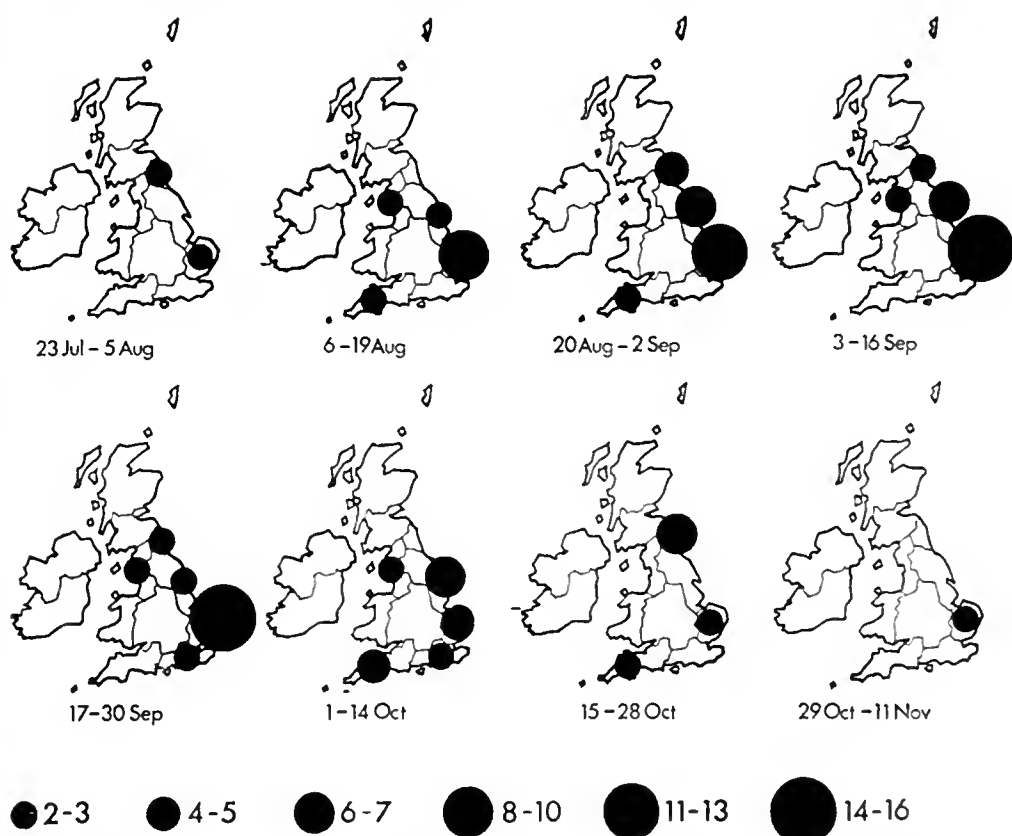


Fig. 53. Regional distribution in eight 14-day periods of autumn Long-tailed Skuas *Stercorarius longicaudus* in Britain and Ireland during 1958-67

gresses. Westward departures from the northern North Sea may take place only in ideal calm conditions and be a very rapid process. This would help to explain the paucity of sightings from northern and western Scotland and Ireland.

The distribution of records through the autumn (fig. 53) reveals a pattern which it is tempting to interpret as reflecting an increasingly more southerly distribution in the North Sea from 20th August to 30th September (with fewer and fewer occurring in north-east and eastern England, but more and more in East Anglia) and then a northwards withdrawal during October (with fewer and fewer in East Anglia, but second peaks of the autumn in, first, eastern England and, second, north-east England). Such small numbers are involved, however, that this attractive pattern may be entirely fortuitous. It has already been questioned whether the species is really such a weak flier compared with the other skuas. The records for the ten years seem rather to suggest that it occurs in the southern North Sea when the autumnal feeding grounds to the north are disturbed by rough weather and that the birds are not necessarily gale-blown, but may be positively seeking calmer areas for feeding (the species seems to be less piratical in its feeding habits than the other skuas). 'Wrecks' such as that of 1879 probably occur only after stormy conditions have persisted for a considerable time, depriving the birds of food and weakening them.

The dearth of spring records on western coasts also suggests that they are not easily storm-driven. The only spring 'wreck' on record (60-70 in the Shannon estuary on 16th May 1860) is excluded from the latest work on the birds of Ireland (Ruttledge 1966) as there is no proof of correct identification. Certainly, normal westerly gales in May do not bring this species to western Ireland, for in 116 hours of systematic sea-watching at Cape Clear Island in May 1962-67 91 Great, 78 Arctic and 51 Pomarine Skuas were recorded, but no Long-tailed. It is noteworthy that Pomarine Skuas are much commoner in spring than autumn at this station (peaks of 0.63 per hour in the first half of May and 0.08 per hour in the first half of October, based on 43 and 182 hours respectively). These spring Pomarine Skuas occur, usually in small flocks, after or during gales and are clearly on their way north to the Arctic breeding grounds which are virtually identical to those of the Long-tailed Skua, with the exception that they do not extend westwards into Fenno-Scandia. If Long-tailed Skuas were so prone to storm-displacement as they are reputed to be, one would expect some occasionally to occur coincidentally with these Pomarine Skuas, even though they are found further west in the Atlantic. *The Handbook* and Bell (1965) noted that over half of the few spring records have been in north-western Ireland; this was not the case in 1958-67, when not one of the 17 spring records was in Ireland.

Finally, attention should be drawn to the apparently increasing fre-



quency with which single Long-tailed Skuas are recorded in Scottish Arctic Skua colonies in summer, at a time when a number of other northern species are colonising northern Britain.

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## Food of Great Grey Owls in Fenno-Scandia

*Heimo Mikkola and Seppo Sulkava*

### Plate 1

The Great Grey Owl *Strix nebulosa* is the largest owl in Europe, apart from the Eagle Owl *Bubo bubo*, and certainly the rarest (Robertson 1967). Several authors have established that its prey is mainly small mammals, but there was no modern information on its food or any quantitative investigation until those by Höglund and Lansgren (1968) in Sweden and Mikkola (1968) in Finland. The latter is unpublished and this paper is a brief summary combining the results of both studies. Pellets were collected systematically at nest sites in Sweden during 1955-64 and in Finland during 1966-67. In addition, the stomachs of 46 Great Grey Owls were examined outside the breeding season in the two countries over the 14 years 1955-68.

### FOOD AT NEST SITES

About 870 pellets were collected at 42 sites in the two countries. They were found at varying distances from the nests, but usually within a radius of 50 to 100 metres. The totals of prey animals identified in the Swedish pellets were 746 from Övertorneå and 1,231 from Pajala-Tärendö (Höglund and Lansgren 1968) and in the Finnish ones were 324 from Oulu, 292 from Vaala, 1,105 from Hyrnsalmi, 304 from Rautio and Haapavesi and 24 from Tohmajärvi, a grand total of 4,026 (the localities are all shown in fig. 1). In Sweden the average number of prey animals in a pellet was 4.0 and in Finland 4.9 (calculated from 71 and 60 unbroken pellets respectively).

The percentages of the main groups of prey animals are given in table 1, from which it will be seen that voles (Microtidae) were found in much the greatest numbers, forming between 79% and 96% of the prey remains at the various localities. Of these, Short-tailed Voles *Microtus agrestis* were easily the most numerous at every site in both Sweden and Finland, accounting for 66.7% of the total, while other voles combined made up 27.3%. Root Voles *M. oeconomus* were quite common in the Swedish prey, though they formed only about 9% altogether. One Common Vole *M. arvalis* was identified in Finland,

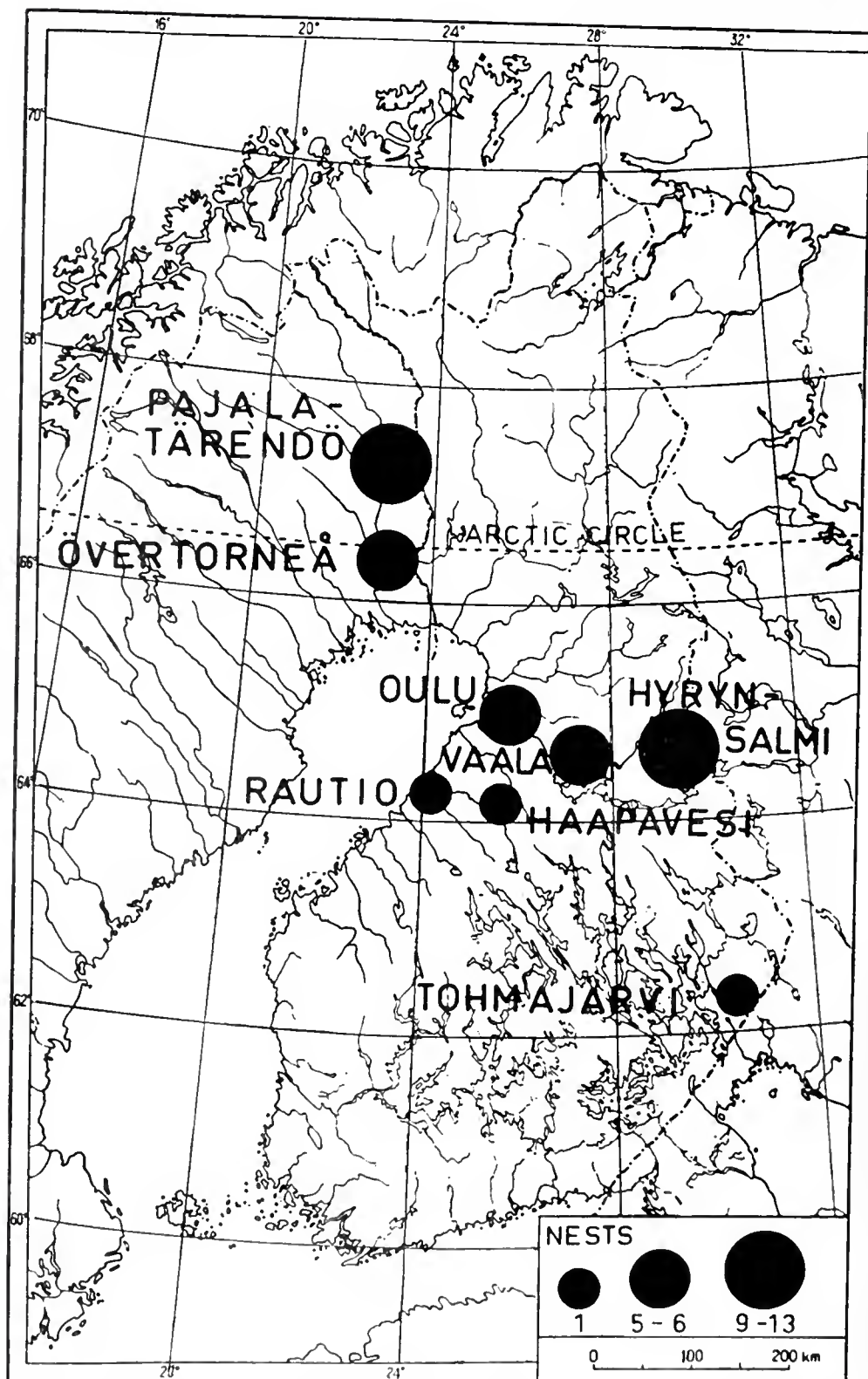


Fig. 1. Localities of nests of Great Grey Owls *Strix nebulosa* where pellets were collected for analysis in Sweden during 1955-64 and in Finland during 1966-67



PLATE 1. Above, female Great Grey Owl *Strix nebulosa* snapping her bill in threat, Finland, June 1967. Below, young swallowing Water Vole *Arvicola terrestris*, 1969. Despite its size (25-30 inches), this big owl feeds mainly on voles, notably Short-tailed Voles *Microtus agrestis*, also shrews (pages 23-27) (photos: Hamme Hautala)







PLATE 2. Red-billed Choughs *Pyrrhuloxia pyrrhuloxia* at nests in a disused mine, Merioneth Montgomery border, July 1952 (above) and 1954, the second about 20 feet from the first. The bird on the left in each photo is the adult; the young, with shorter yellowish bills, fledge in 35-40 days (pages 28-32) (photos: Harold Platt)







PLATES 3 and 4 *overlaid*. Red-billed Chough feeding small young by regurgitation and, below, nest and eggs in a copper mine, Caernarvonshire, June 1967. The nest is lined with a thick pad of wool and hair and the 3-6 eggs, cream to pale greenish spotted with sepia, hatch in about 18 days (page 300 *plated by L. L. Brege Jones*)













PLATE 5. Alpine (or Yellow-billed) Choughs *Pyrrhocorax graculus* with Snow Finches *Plectrophenax nivalis*, Switzerland, January 1969. The upper photo illustrates the glossy blue-black plumage and shorter yellow bill (cf. plate 4), while the lower shows the flight silhouette with spread primaries (page 28) (photos: Eric Hosking)





PLATE 6. Above, mass-feeding by Smews *Mergus albellus*, Netherlands, January 1968; they totalled at least 750 (nearly 200 here), 75% being adult males (pages 32-33; photo: Hans Kullander). Below, lower mantle feather of Guillemot *Uria aalge* with unusual abrasion, Northumberland, September 1968 (pages 34-36; photo: G. Houston).

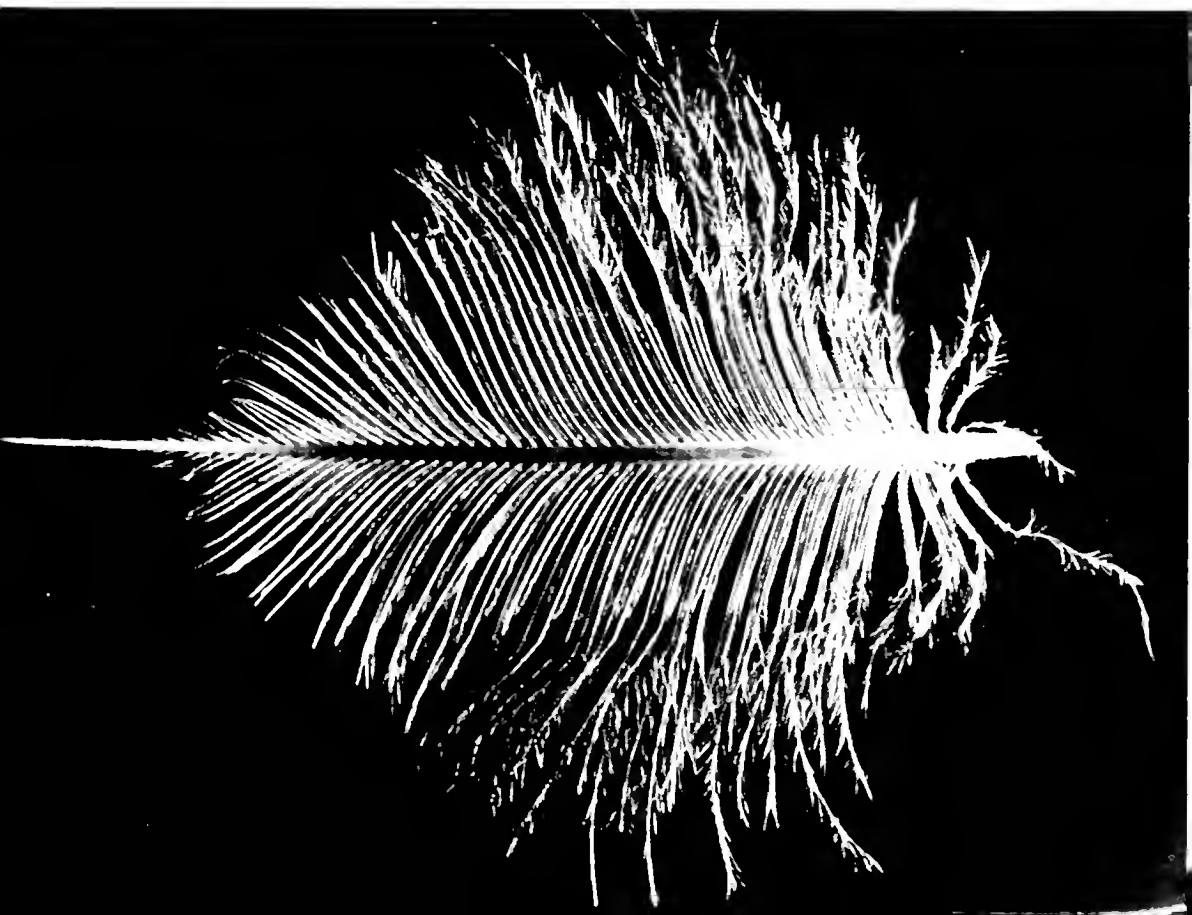




PLATE 7. Above, nest of Feral Pigeon *Columba livia* built almost entirely of nine-inch strands of wire, Sheffield, June 1969 (pages 36-37) (photo: J. A. Coulthard). Below, four young Swallows *Hirundo rustica* in a Blackbird *Turdus merula* nest that the adult Swallows had taken over, Kent, July 1969 (page 37) (photo: B. A. Tremam)



	SWEDEN			FINLAND				
Ö	P	Total	T	O	V	H	R	Total
Research years								
Number of nests	1957-64 6	1955-64 13	1955-64 19	1966 6	1966-67 5	1966-67 9	1966 2	1966-67 23
Number of prey animals	746	1,231	1,977	324	292	1,105	304	2,049
<i>Voles (Microtus)</i>								
Voles ( <i>Clethrionomys</i> )	76.9%	68.7%	71.8%	75.3%	82.9%	78.7%	80.9%	78.8%
Water voles ( <i>Arvicola</i> )	9.0%	22.9%	17.7%	15.1%	10.3%	12.9%	8.9%	12.4%
Lemmings ( <i>Myopus</i> )	1.5%	1.5%	1.5%	1.9%	1.4%	1.4%	1.3%	1.5%
	4.8%	1.5%	2.7%	—	0.3%	3.0%	—	1.6%
<i>Total voles (Microtidae)</i>								
Shrews (Soricidae)	92.2%	94.6%	93.7%	92.3%	94.9%	96.0%	91.1%	94.3%
Other prey	5.4%	4.9%	5.1%	6.2%	2.4%	2.4%	5.9%	3.6%
	2.4%	0.5%	1.2%	1.5%	2.7%	1.5%	3.0%	2.1%



at Tohmajärvi. Two species of *Clethrionomys* were found, these being Bank Voles *C. glareolus* and Grey-sided Voles *C. rufocanus* which together formed 17.7% of the food in Sweden and 12.4% in Finland. Water Voles *Arvicola terrestris* were scarce in the pellets, accounting for only 1.5% of the prey in each country. Wood Lemmings *Myopus schisticolor* were identified in the prey in both the Swedish areas, but at only two of the five localities in Finland and they made up a mere 2.2% of the total in the two countries combined.

Shrews (Soricidae) formed 4.3% of the food animals in the two countries. The great majority (102) were Common Shrews *Sorex araneus*, but 15 Pygmy Shrews *S. minutus*, eight Masked Shrews *S. caecutiens*, two *S. isodon*, one Least Shrew *S. minutissimus*, ten Water Shrews *Neomys fodiens* and 34 unidentified shrews were also included.

Mammals other than voles and shrews made up only 0.3% in the two countries combined. These were one Mole *Talpa europaea*, one Muskrat *Ondatra zibethica*, two Harvest Mice *Micromys minutus*, four Pygmy Weasels *Mustela rixosa* (in Finland) and four Red Squirrels *Sciurus vulgaris* (in Sweden). Of the 57 other animals found in the pellets, 13 (again 0.3%) were frogs *Rana spp* at five different nests and 44 were birds (1.1%). The latter included only five game-birds (two adult Hazel Hens *Tetrastes bonasia* and three unidentified chicks of

**Table 2.** Food of Great Grey Owls *Strix nebulosa* outside the breeding season in Sweden and Finland during 1955-68

These figures are based on 27 stomachs, ten from Sweden (Höglund and Lansgren 1968) and 17 from Finland (this study)

	Sweden	Finland	Total	Per cent
Common Shrew <i>Sorex araneus</i>	5	31	36	37.6%
<i>Sorex isodon</i> (no English name)	—	1	1	1.0%
Pygmy Shrew <i>Sorex minutus</i>	1	2	3	3.1%
Least Shrew <i>Sorex minutissimus</i>	—	1	1	1.0%
<b>TOTAL SHREWS (Soricidae)</b>	<b>6</b>	<b>35</b>	<b>41</b>	<b>42.7%</b>
Short-tailed Vole <i>Microtus agrestis</i>	11	22	33	34.5%
Root Vole <i>Microtus oeconomus</i>	4	—	4	4.2%
Unidentified voles <i>Microtus spp</i>	3	—	3	3.1%
Wood Lemming <i>Myopus schisticolor</i>	1	—	1	1.0%
Bank Vole <i>Clethrionomys glareolus</i>	1	5	6	6.2%
Grey-sided Vole <i>Clethrionomys rufocanus</i>	—	4	4	4.2%
Unidentified voles <i>Clethrionomys spp</i>	1	1	2	2.1%
Water Vole <i>Arvicola terrestris</i>	1	—	1	1.0%
<b>TOTAL VOLES (Microtidae)</b>	<b>22</b>	<b>32</b>	<b>54</b>	<b>56.3%</b>
Willow Grouse <i>Lagopus lagopus</i>	—	1	1	1.0%
<b>GRAND TOTALS</b>	<b>28</b>	<b>58</b>	<b>96</b>	<b>100.0%</b>

Tetraonidae), and otherwise three waders (Charadriidae), two Jays *Garrulus glandarius*, one tit *Parus sp*, twelve thrushes *Turdus spp*, one Crossbill *Loxia curvirostra*, five Chaffinches *Fringilla coelebs*, two Rustic Buntings *Emberiza rustica* and seven unidentified small birds, as well as one Tengmalm's Owl *Aegolius funereus* and, in Sweden, three nestling Great Grey Owls.

#### FOOD OUTSIDE THE BREEDING SEASON

Analyses were made of the stomach contents of 24 Great Grey Owls from Sweden (Höglund and Lansgren 1968) and 22 from Finland (Department of Zoology, University of Oulu). Of these, 14 and five respectively were empty and the results of the remaining 27 are set out in table 2. Apart from a single Willow Grouse *Lagopus lagopus*, the stomach contents consisted exclusively of voles and shrews. It should be noted, however, that the percentage of voles had dropped to 56.3% and that shrews formed ten times as high a proportion of the total (42.7% compared with 4.3%) as they did during the breeding season. This difference was due to the fact that these owls were mostly studied in winters when Short-tailed and other vole populations were low (this being known as a result of monthly quantitative trapping of small mammals by the Department of Zoology, University of Oulu). Nevertheless, it is clear that voles and shrews are the essential prey of the Great Grey Owl at all seasons.

#### SUMMARY

About 870 pellets of the Great Grey Owl *Strix nebulosa* were collected at 42 nest sites in Sweden and Finland during 1955-67. Of the 4,026 prey animals identified in them, the great majority were voles (Microtidae), Short-tailed Voles *Microtus agrestis* forming 66.7% and other species 27.3%. Shrews (Soricidae) of six species made up a further 4.3%. The remaining 1.7% included twelve other mammals of five species, 13 frogs *Rana sp* and 44 birds ranging from finches (Fringillidae) and five adult and young game-birds (Tetraonidae) to Jays *Garrulus glandarius* and a Tengmalm's Owl *Aegolius funereus*. In addition, the stomach contents of 46 Great Grey Owls were examined outside the breeding season: 19 of these were empty, but the remaining 27 included 96 prey animals, of which 56.3% were voles and 42.7% shrews, the only other item being a single Willow Grouse *Lagopus lagopus*. The increase in shrews taken was due to fluctuations in the number of voles, but these two families of small mammals provide the great majority of the Great Grey Owl's food at all seasons.

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## Studies of less familiar birds

### 157 Chough and Alpine Chough

P. F. Bonham

Photographs by E. V. Breeze Jones, Harold Platt and Eric Hosking

Plates 2-5

When the choughs *Pyrrhonorax spp* previously appeared in this series (Ferguson-Lees 1958), most of the photographs were of the Alpine (or Yellow-billed) species *P. graculus* in the Italian Apennines. E. V. Breeze Jones has now produced a more recent series of photographs of the Red-billed Chough *P. pyrrhonorax*, taken in a copper mine in Caernarvonshire (plates 3-4), and Eric Hosking two winter shots of the Alpine Chough in Switzerland (plate 5). As several detailed studies of both species have been made in the last decade, notably in the British Isles and Switzerland, it seems an appropriate time to follow up the previous feature and to take the opportunity of publishing two more of Harold Platt's fine series of Red-billed Choughs in an old lead mine on the Merioneth/Montgomery border (plate 2).

Choughs are rather small, slender crows with glossy blue-black plumage and bright red legs. Both species are confined to the Old World, almost entirely in temperate regions, but only the Red-billed Chough extends to Britain and Ireland. At close range, its slender, decurved, red bill about two inches long (plate 4) is its main distinction from the Alpine Chough, whose yellow bill is shorter and straighter (plate 5a). The bill of the former may vary in colour from blood-red to orange. Both choughs can be distinguished from the Jackdaw *Corvus monedula*, which is about the same size, by their more slender forms, uniform glossy plumages and coloured bills and legs. At a distance, however, the best character is their much more powerful flight: gliding buoyantly on broad, rounded wings, their primaries invariably separated and often curved up at the tips (plate 5b), with a few slow flaps now and then, they are more likely to be confused with the larger corvids than with Jackdaws. Like Ravens *C. corax*, pairs and flocks will indulge in aerial evolutions, suddenly soaring on updraughts, rolling over or diving with wings closed, and in suitable weather sometimes circling higher and higher on thermals.

The two choughs can easily be confused with each other where their ranges and habitats overlap; the bill colour is almost impossible to see at a distance, and the best distinction is then afforded by their usually frequent calls, loud, far-carrying and quite diagnostic. The

Red-billed Chough's is a high-pitched, nasal 'chee-aaa', with other calls reminding one of gulls (and even of chickens), while the Alpine Chough has a shrill, whistling 'tseeoo' and several noises reminiscent of Starlings *Sturnus vulgaris*. Both species are highly gregarious throughout the year, even in the breeding season, the pairs often flying and feeding together and then leaving the flock for a while to return to the nest (see, for example, Williamson 1959). Large, tightly-knit flocks of choughs are very difficult to count accurately, as many individuals and pairs seem to be milling around quite independently of their companions, 'swinging and swaying like bits of charred paper in the wind' (Williamson), and yet the whole flock moves along rapidly with very little straggling.

Both choughs are found in Morocco and Algeria, and have rather discontinuous distributions across southern Europe eastwards through Turkey and the Middle East to the Himalayas and Sinkiang. The Red-billed bird extends even further east and north-east, to China and Mongolia, and has other outposts in Brittany, the Canary Islands (but, strangely, only on Palma) and northern Ethiopia, as well as in Britain and Ireland. Despite its name, the Alpine Chough is not confined to high mountains and, at the same time, the other species sometimes occurs at the greater altitudes and in exactly the habitats where one would expect to see Alpine Choughs. In fact, the two distributions are fairly similar, at least in southern Europe, north Africa and south-west Asia, being limited, of course, by the need for cliffs and crags in hilly and mountainous country; and where the two species occur together they frequently nest at the same altitudes, anywhere from 2,000 to 12,000 feet or more above sea level. Bannerman (1953) mentioned the occurrence of several Red-billed Choughs at one of the 1921 Everest expedition's camps in the Himalayas at no less than 20,000 feet. This species, however, is also found on sea-cliffs in some parts of its range, particularly in Britain and Ireland.

An enquiry into the status of the Red-billed Chough in Britain and Ireland, organised by the British Trust for Ornithology in 1963, was documented by Rolfe (1966) and Cabot (1965). Altogether 700-800 breeding pairs and about 400 non-breeding individuals were counted, with 98 pairs in Wales, about 20 in the Isle of Man, eleven in south-west Scotland (entirely in Argyll) and all the rest in Ireland. Most of the Welsh pairs were in Caernarvon and Pembroke, with the rest in Anglesey, Cardigan, Denbigh (a single pair prospecting a quarry 40 miles inland), Merioneth and Montgomery. The Irish strongholds were Donegal and Kerry, and to a lesser extent Mayo, Galway and Cork; the remainder were in Antrim, Clare, Sligo and Waterford. Choughs are absent from much apparently suitable habitat, but perhaps this is only to be expected with an isolated population of such a sedentary species on the fringe of its range and, at least in Ireland,

they appear to be holding their own in many areas. Choughs are believed not to nest until their second summer, which would partly explain the apparently large number of non-breeders.

Both choughs are surprisingly slow to extend their range even by a few miles, particularly when compared with the adaptable Jackdaw which was once blamed, with tales of eviction from nest-holes, for the Red-billed species' decline in several time-honoured localities in Britain. In France, too, Guichard (1962) wrote that the Breton and Pyrenean populations of the Red-billed Chough had been maintained, but that the species had declined in the Alps, again for obscure reasons, 'perhaps . . . ecological competition with the Jackdaw whose recent expansion in high mountainous regions has been rather remarkable'. In Cornwall, however, where four to six pairs still bred as recently as the late 1940's though no nesting has taken place since 1952, Ryves (1948) entirely disagreed with the view that Jackdaws were to blame and held other factors to be responsible. It must be remembered that there are many areas occupied by stable populations of both Jackdaws and choughs, as well as others devoid of Jackdaws where choughs have declined.

Typical nests are to be found in holes, ledges and cracks in cliffs, ravines and caves, but both species will also use man-made sites. The same site may be used year after year, sometimes isolated, but often in a loose colony. The female builds the bulky nest of sticks, roots and plant stems, lined with a thick pad of wool and hair in the case of the Red-billed Chough (plate 3b) or fine dry grasses in that of the Alpine species. The usual clutch is 3-6 eggs, though it is rare for more than five young to be reared. Incubation, entirely by the female, normally begins as soon as the first egg is laid; it lasts about 18 days in the Red-billed Chough and a little longer in the other species. The young take about a month to fledge, but remain in the nest for several days more, still very dependent on the food regurgitated by their parents (plate 2). (Incidentally, young Red-billed and Yellow-billed Choughs look much the same, each with rather short yellowish bills.) After leaving the nest, they show a strong attachment to the site for several weeks. Cowdy (1962) provided a most graphic and detailed account of the progress of a family of young Red-billed Choughs on the Welsh island of Bardsey in 1958. Choughs are normally single-brooded, but the B.T.O. survey revealed an exception: a pair reared two broods of four in May and September 1962, and again in 1963, on Ballycotton Island, Co. Cork.

The B.T.O. survey showed that in Britain and Ireland about 65% of nests of Red-billed Choughs were in sea-cliffs or caves, mostly 20 to 100 feet above high water mark, but with extreme heights of 12 to 800 feet. About 25% were built in mines, quarries or inland cliffs, though mostly still very near the sea, and the rest (about 10%) in

disused buildings or ruins, usually on the coast. The type of site chosen largely depended on those locally available. All 33-36 Pembrokeshire sites were in sea-cliffs or caves; this county has a very long, rocky coastline and little suitable habitat inland. On the other hand, the reverse is true in Merioneth and Cardiganshire, where only four pairs nested on the coast and twelve pairs inland at 300 to 1,250 feet above sea-level; two inland Welsh sites are shown in plates 2-4, both in derelict mines. Incidentally, the choughs on plate 2 usually reached the nest along a 200-foot horizontal tunnel, but they sometimes left by flying up a 100-foot vertical mine-shaft.

According to Jean Strahm (in Glutz von Blotzheim 1962), the Alpine Chough in Switzerland nests from time to time in the roofs, garrets and walls of old buildings and ruins, and also in tunnels. Tintori (1964) found a nest in the roof of a Swiss chair-lift hut on 14th June 1963; unfortunately, only one egg out of four hatched and the young bird did not survive. Much greater success attended the various nests found during 1964-68 in several Swiss chalets and a stable by Voisin (1968) and Codourey (1968). The nests in the stable measured up to two feet across and a foot deep, and weighed up to a pound or more. Much of the breeding activity in this stable was filmed, and Voisin's account includes a mass of data on feeding rates and other behaviour. J. Burnier found a pair building a nest in the Tunnel des Agittes sur Bex, Switzerland, on 14th May 1967 (*Nos Oiseaux*, 29: 246). Alpine Choughs have also taken advantage of man's increasing intrusions into their strongholds in another way: by visiting the car parks on the high mountain passes during the summer for food scraps. Some of these birds have become remarkably tame, feeding almost from the hands of the tourists. Otherwise, both species eat insects and their larvae, crustaceans, molluscs, spiders, worms and lizards, and in some areas grain, seeds and fruit. Occasionally, small rodents and nestling birds may also be taken (Lane 1957). Red-billed Choughs in Snowdonia sometimes frequent rubbish tips in bad weather, and have been seen foraging in manure heaps and even breaking up cowpats to secure the larvae underneath.

During late July and August family parties of choughs occur in large flocks, sometimes with the two species mixed. In Spain, 200 or more Red-billed Choughs have been seen together, and even in the Swiss Alps, where this species is much rarer, a flock of 50 was recorded in the Vallée de Reche, Valais, on 27th August 1967 (C. Bottani, *Nos Oiseaux*, 30: 34). Alpine Choughs occur in even greater numbers—a flock of over 500 was watched above Valloire, Savoie, France, as early as 27th August 1968 by R. R. Greenhalf and W. Merritt (pers. comm.), and as many as 920 at Monthey, Valais, on 11th January 1964 by R. Voisin (*Nos Oiseaux*, 28: 28); during the winter their Alpine feeding grounds are restricted by deep snow to the valley bottoms,



where gatherings of a few hundred are commonplace. The winter movements of these birds in various Swiss valleys have been described in great detail in a series of papers by Paul G  routet, Miriam Rothschild, Jean Strahm and Ren   Voisin (*Nos Oiseaux*, vols 24-29). Even in such large parties, the pairs seem to keep together throughout the year, and most are probably mated for life.

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## Notes

**Mass-feeding by Smews** In the *Handbuch der V  gel Mitteleuropas* (vol 3, 1969: 422) Dr K. M. Bauer and Dr U. N. Glutz von Blotzheim cited J. A. Naumann's *Naturgeschichte der V  gel Deutschlands* (edited by J. F. Naumann, vol 12, 1844) and stated that co-operative feeding as recorded for other sawbills *Mergus spp* was unknown for the Smew *M. albellus*. In the Netherlands on 6th January 1968, however, we watched a large and densely packed flock of Smews feeding *en masse* on the IJsselmeer off Oostelijk Flevoland. The birds in the front were continually diving, while those at the rear struggled to keep up with the leaders by making short flights in the way that Goosanders *M. merganser* do in similar circumstances. They seemed highly excited and, as the flock moved along, other Smews joined in from the surrounding waters to take part in this feeding activity; a few scattered Goosanders also took part. Accompanying the ducks were about 20

Common Gulls *Larus canus* and a few Herring Gulls *L. argentatus* which were attempting to parasitise them, but obviously with little success because the ducks always dived instantly when attacked or when they happened to surface near any of the gulls. At first we found the number of Smews difficult to estimate, but after a time diving became less intense and we succeeded in making several independent counts: there were at least 750, about three-quarters of them being adult males. Part of the flock is shown on plate 6a.

In every respect, the behaviour resembled mass-fishing by Goosanders, which is such a feature of some Swedish lakes in late autumn and, above all, of the IJsselmeer in winter, when a single flock can number 10,000.

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### **Incubating Moorhen repeatedly pulling cover over itself in rain**

During an all-night fishing session at a disused clay pit near Snaith, Yorkshire, on 24th-25th May 1969, A. Smith, C. Bowyer and I saw a brooding Moorhen *Gallinula chloropus* behaving in an unfamiliar way. Just after we had taken up our pitches on the bank in the early evening, I noticed the Moorhen on its nest a few yards out from the bank and about 15 yards away to my right at the edge of a bed of short and sparse *Phragmites*. A.S. was much farther to my right, and C.B. on my left, neither being able to see the bird from their pitches. About one foot from the nest I noticed a very dirty piece of polythene about a foot square. At about 20.00 BST it began to rain heavily and, after some two minutes, the Moorhen stood up on its nest, moved one leg, reached forward and downward and picked up the polythene with its bill. It then arranged this over its back, pushing it into place with shuffling movements of its bill. The whole operation, taking only about a minute, was performed very skilfully and deliberately, and appeared to be customary behaviour in such circumstances. Its movements were reminiscent of a bird manipulating nest material while brooding. The polythene had the appearance of a cape, covering the entire back and sides, with only the head and neck protruding at the front. I immediately called my colleagues over and they came and looked at it with the 'cape' in position.

The heavy rain lasted for most of the night, and I erected waterproof sidescreens which prevented me from seeing the nest. A.S. came over three times in the rain and noted that, whenever he passed, the Moorhen hurriedly left the nest, dislodging the polythene; almost at once it returned and resumed brooding, covering itself as before. He watched this behaviour for two or three minutes on each occasion. By dawn the rain had stopped and I noticed that the polythene was once more beside the nest. A further short shower started at about



05.00 BST, however, and some two minutes later the Moorhen again covered itself with the plastic sheet. By this time I had stopped fishing and was able to direct my full attention to the bird. The rain stopped, and about ten minutes later the Moorhen turned its head round, and, grasping the edge of the piece of polythene in its bill, flicked it sideways to land beside the nest about a foot away as before.

The polythene was the only piece of flotsam in the vicinity and the Moorhen was apparently using it deliberately to shelter itself and the nest from the rain, removing it just as purposely after the rain had stopped.

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**Black Terns feeding after ploughs** With reference to the note by Dr A. D. Brewer (*Brit. Birds*, 62: 282) I should like to make some comments on certain aspects of the feeding behaviour of the Black Tern *Chlidonias niger*. As long ago as 1907 Dr R. M. Anderson (*The Birds of Iowa*: 125) wrote that Black Terns 'evinced little fear of man, and large numbers will often follow a man plowing, hovering over his head and looking for grubs turned up by the plow'. On 4th July 1962, in Waukesha county, Wisconsin, U.S.A., I myself saw several Black Terns flying close behind a motor plough, dropping down to pick up what were apparently worms from the furrows; this was only a few hundred yards from a lake where there was a breeding colony with at least 100 adults.

These observations, like Dr Brewer's, relate to the American race of the Black Tern *C. n. surinamensis*; hunting for land insects in the southern United States was also mentioned in 1921 by A. C. Bent (*Life Histories of North American Gulls and Terns*: 296), who referred particularly to their catching the moths of the cotton-boll worm *Heliothis obsoleta*. As long ago as 1840, however, J. A. Naumann (*Naturgeschichte der Vögel Deutschlands*, x: 206) reported that European Black Terns *C. n. niger* occasionally search for earthworms on fallow land many miles from water, and I myself have seen this happening over cornfields around Lübeck Bay and south of Lake Dümmer in north Germany. Such behaviour is scarcely mentioned in modern publications on this species.

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**Abnormal feather wear in Guillemots** In September 1968 a Guillemot *Uria aalge* was found waterlogged, but not oiled, on the shore at Whitley Bay, Northumberland. It was sent to Mrs E. Wilcox, who has experience of rehabilitation of oiled birds, but it died within 24 hours. The wing-coverts and feathers of the rump and lower mantle were heavily abraded and pale brown in colour, contrasting with the unworn black feathers of the back (plate 6b); the rest of the plumage

was normal. In view of its unusual condition the carcass was sent to me and the skin is now in the Hancock Museum, Newcastle upon Tyne. In the same month Mrs M. Mee received three similar Guillemots found waterlogged on the shore at Newbiggin, Northumberland. They also were not oiled, but died within 48 hours after passing blood. Mrs Mee recollects that in 1958 she received a batch of about 20 Guillemots from Newbiggin, which again were not oiled but showed this same condition; only one survived to be released. Her description of the state of the plumage of these birds tallies exactly with that of the one from Whitley Bay. She believes that the condition is caused by pollution at sea with a strong corrosive, possibly one used in cleaning out oil tanks, and she describes it as 'bleached feathers'. It is unfortunate that none of these birds was preserved, but an adult male Guillemot in the Hancock Museum shot at Holy Island, Northumberland, on 13th September 1920 shows the same condition, though involving only the rump feathers.

Dr J. G. Harrison (*Bull. Brit. Orn. Cl.*, 75: 113-114) described a similar condition in a Guillemot found oiled at Hornsea, Yorkshire, in March 1955. The distal barbs of the rectrices and of the white-tipped secondaries were absent, so that the rachises were bare for much of their length. The mantle and rump feathers showed 'a failure of the barbules with the result that the barbs have become unduly separated'. Harrison discounted the possibility of excessive preening as the cause, since the wear was symmetrical. He believed that 'the underlying cause is more likely to have been an inherent weakness of the barbules, so that water friction when swimming beneath the surface caused an exceptional amount of wear'. He noted also that 'it is a very remote possibility that the original barbule failure might be the result of energetic treatment with a detergent to remove a previous oil contamination'. Dr J. M. Harrison (*Bull. Brit. Orn. Cl.*, 77: 46-47) recorded a similarly 'needle-tailed' Black Guillemot *Cephus grylle* which died of enteritis at Dungeness, Kent, in August 1956. Wear involved the whole of the plumage, but especially the mantle and rump. The remiges and wing-coverts were worn and faded, and the rectrices 'show an almost complete absence of barbs and are to all intents and purposes shafts only for three-quarters of their length'. He suggested that there was likely to be a genetic basis to the condition and cited a case of a Pochard *Aythya ferina* which had lost the barbules of the rectrices.

C. W. Beebe and L. S. Crandall (*Zoologica*, N.Y., 1: 249-252) described a somewhat similar condition in Colombian Torrent Ducks *Merganetta armata colombiana*, in which the denuded shafts of the rectrices were, in fact, much abraded caudal down retained on the tips of the juvenile rectrices. They suggested that such specialised feathers were of great use in increasing manoeuvrability in fast-flowing streams.

They also described a less advanced stage in the Wood Duck *Aix sponsa* and the Ruddy Duck *Oxyura jamaicensis*, and concluded that 'the Torrent Ducks . . . show that what in other members of the family is merely an evanescent physical connection between two series of feathers . . . is carried to a much greater extreme of specialization, probably of direct benefit to the species'.

It is interesting to speculate on the cause of the extreme wear in Guillemots. The rectrices of the one from Whitley Bay were completely normal, and the feet and tarsi were not affected by the lesions of infective arthritis typical of Guillemots which have spent a period on land whilst undergoing rehabilitation. It is extremely unlikely, therefore, that this bird had been oiled and cleaned at some stage in its life. The occurrence of 20 apparently similar birds, described above, suggests that contact with some corrosive pollution might be the cause, but evidence is needed. Drs J. M. Harrison and J. G. Harrison (*Bull. Brit. Orn. Cl.*, 76: 76-78) described excessive wear and absence of barbules in tubercular Woodpigeons *Columba palumbus*, which shows that disease is capable of causing plumage abnormalities. Lack of melanin, which is genetically determined in some cases, leads to excessive wear as R. G. Finnis (*Bull. Brit. Orn. Cl.*, 79: 152) described in a greyish Blackbird *Turdus merula* whose feathers were fragile and the tips of the rectrices worn. C. J. O. Harrison (*in litt.*) comments: 'I doubt if this represents a genetic peculiarity but it may well arise from some temporary upset of the bird's metabolism . . . it could arise from a failure to moult some feather tracts or from a deficiency of melanin pigment in the feathers concerned, which would make them susceptible to rapid wear.'

To summarise, a very striking plumage abnormality in Guillemots is described in which the feathers of the back and rump and the wing-coverts are pale brown, with the distal barbs worn off, leaving the rachises bare for much of their length. The cause is unknown, but it is significant that two other cases cited in the literature showed the greatest wear in the same regions, and that this is also borne out by the findings of Mrs Mee in the course of a considerable experience of rehabilitating oiled Guillemots.

R. J. KENNEDY

*Department of Zoology, The University, Newcastle upon Tyne NE1 7RU*

**Feral Pigeons building nest of wire** About 11th June 1969 one of our employees in the Stainless Steel Wire Company at Sheffield, Yorkshire, discovered a nest of a pair of Feral Pigeons *Columba livia* which was built almost entirely of wire strands. It was 20 to 25 feet above the ground, in a slit in one of the boundary turrets of the old barracks which house our Hillsborough Works. There were two eggs and one hatched about 23rd June, but the pigeons apparently kicked the other out of the nest (plate 7a). The young bird was able to fly

after a month or so, and during August I removed and examined the nest. Twelve inches across and two inches deep, it weighed 14½ ounces. Only 13 twigs had been used in its construction, all the rest of the material being stainless steel wire cuttings about nine inches long and a twentieth of an inch in diameter, which were available in large quantities near-by.

P. W. HEMMINGS

*Stainless Steel Wire Company, Hillsborough Works, Langsett Road, Sheffield, Yorkshire S6 2LU*

**Swallows rearing two broods in Blackbirds' nest** In April 1969, at Longfield Primary School, Kent, a pair of Blackbirds *Turdus merula* built a nest inside a timber-built changing room and successfully raised a brood. The nest, about three feet from the floor, was in the corner formed by a brick outside wall and a timber side-wall, and was partly supported by a horizontal strip of wood to which coat-hooks were fixed. Access for the birds was by way of an unglazed window. The room was used by pupils throughout the summer term, from 24th April to 25th July. Immediately the young Blackbirds had fledged, the nest was occupied by a pair of Swallows *Hirundo rustica*. They made only a token attempt at a mud structure, affixing small strips of mud to the rim of the Blackbirds' nest in two places (against the wooden wall and on the opposite open side), and otherwise simply added a considerable quantity of fine plant stems and feathers. The Swallows laid four eggs and successfully reared four young in late July (plate 7b). A second clutch of four followed, from which three young fledged in mid-September. The two broods were marked with British Trust for Ornithology rings on 18th July and 14th September.

J. ALLEN

*Cleveland, Longfield Avenue, New Barn, Longfield, Kent*

**Sunbathing by migrant and vagrant passerines** Most records of sunbathing relate to birds in their normal ranges and habitats: see, for example, the summaries and observations by John Gibb (*Brit. Birds*, 40: 172-174) and Noble Rollin (*Brit. Birds*, 41: 304-305, plates 52-54) and, more recently, by C. W. Teager (*Brit. Birds*, 60: 361-363, plates 42-47) and R. J. Kennedy (*Brit. Birds*, 62: 249-258). On three occasions, however, I have watched migrant or vagrant passerines unexpectedly sunbathing in somewhat adverse conditions.

Early on 5th May 1946, a very sunny morning at Cheddar Reservoir, Somerset, some 300 Sand Martins *Riparia riparia*, probably recent arrivals, had clustered together on the concrete parapet in the lee of a cold breeze, but in the direct path of the sun's rays. The martins seemed very tired and many of them were quite still with one or both wings extended, obviously sunbathing. Some were lying on their sides and, by stretching a wing, allowing the warmth to play upon



their axillaries and body feathers. Others were flying to shallow water near-by, bathing and preening before returning to the flock. About 15 minutes later they all flew off in small parties in a northerly direction.

My other two observations have concerned vagrants. On 14th September 1958, at Marazion Marsh, Cornwall, I discovered a Bonelli's Warbler *Phylloscopus bonelli* after a morning of heavy rain (*Brit. Birds*, 52: 317). It was perched in full view on a bramble bush during a temporary sunny spell, positioning itself and slightly dropping its wings so that the sun's rays played directly upon its upper-parts. It remained in this position for at least two minutes until, unfortunately, it was disturbed.

The last case was of a Desert Wheatear *Oenanthe deserti* at Selsey Bill, Sussex, on 6th November 1960 (*Brit. Birds*, 54: 190). Although apparently in poor condition, it often tried to find warmth in the weak sunshine and sought higher perches later in the day when the ground was in shadow. Once I saw it alight on a post twelve feet high and turn to allow the sun's rays to fall on its upper-parts like the Starling *Sturnus vulgaris* in the photograph by C. W. Teager (plate 47 referred to above).

BERNARD KING

Mayfield, 9 Uplands Road, Saltford, Bristol

**Thrushes, Starlings and House Sparrows eating putty** At the end of 1968 part of the roof of my greenhouse at Norwich, Norfolk, was damaged by the weight of snow breaking a cross-member. As a result, I had to replace three glazing bars, each 6½ feet long, and 16 panes of glass which I fixed with linseed oil putty. Two or three days after I had finished the work on 27th January 1969 I noticed beak marks in the putty at the bottom end of the glass where there was a good foothold for birds. On 1st February my children drew my attention to more than a dozen Starlings *Sturnus vulgaris* perched on or hovering over the newly glazed section; they were attacking the putty which, although set, had not yet hardened or been painted over. On 3rd February the Starlings (up to 23 at a time) continued to peck noisily at the putty, then covered by half an inch of snow which gave them a better foothold on the sloping roof. At times they were joined by one or two Blackbirds *Turdus merula*, Song Thrushes *T. philomelos* and House Sparrows *Passer domesticus* which were also clearly pecking at the putty. Usually these other species stayed for only two or three minutes, but there were at least two occasions when thrushes or sparrows were present without the Starlings.

At the ridge of the greenhouse I had covered the new putty with a strip two inches wide of sylglass (canvas impregnated with a waxy substance) to make a waterproof seal. On 4th and 5th February the birds finished the exposed putty and then on the 6th my wife pointed out that the sylglass was sticking up in places. The birds had discovered the putty underneath and during that day, with a firm foot-

hold on the ridge, they proceeded to clear it under the whole six-foot length of sylglass which afterwards hung down from the ridge to the gutter. Altogether they cleared 58 feet of putty round the 16 panes of glass.

H. G. LAY

202 *Earlham Road, Norwich* NOR 09G

Various species have been recorded eating putty, but in this case the number of individuals involved, their persistence in locating all the sources, the remarkable quantity cleared and the participation of the thrushes combine to make an unusual record. EDS

## Reviews

**British & European Birds in Colour.** Text by Bertel Bruun, paintings by Arthur Singer. Paul Hamlyn, London, 1969. 321 pages; over 500 paintings; 449 maps. 70s.

The lay-out of this book suggests that it was conceived as a vehicle for Arthur Singer's paintings, and I am sure that browsers in book-shops (all potential converts to conservation) will be enchanted by them. They consist of a series of slightly stylised species portraits interspersed with more elaborate, often whole-page, paintings of one or more species in typical habitats. The illustrations are certainly evocative, although there is an element of artist's licence about some and they can be rather misleading as to scale. In general the artist catches the 'jizz', although some of his small waders and passerines look rather thick-necked. His real strength lies in the non-passerines, and the generous series of flight portraits of gulls and terns should prove very useful. Inevitably there are some minor errors—a Blue Tit with black legs for example—but the colour printing may be partly responsible because the Dipper is chestnut, and a very washed-out Robin is followed on the next page by another in much more realistic tones.

The supporting text consists of a series of essays based on orders, families or smaller groups of species. In addition, there is an extended caption (in smaller type) for each species, varying in length between about 30 and 150 words. Incorporated in the essays, but not indexed in any way, is much background information. Thus the essay headed 'Warblers', after warning beginners that they will find the group a nightmare, discusses orientation, song, call notes, territory, egg teeth, nest sanitation and so on. Pesticides and the concept of food chains are mentioned towards the end of the essay on thrushes. Earlier in the same essay is the claim that 'large dark eyes underline the confidence this bird (the Robin) shows in man'.

Quite correctly, in a book on European birds, each extended caption



starts with the European status; the status in Britain and Ireland is given at the end by the letters R (resident), S (summer visitor), W (winter visitor), P (passage migrant) and V (vagrant). Beginners may be misled by Chough 'common in high mountains (R)' and Ortolan 'common in rather open, dry country (P)'. Old hands may be confused by the order of species. Thirteen pages are devoted to distribution maps for 448 species, which are welcome because they make a serious attempt to convey winter as well as summer distribution. The scale is too small to clarify the Chough problem referred to above, yet large enough to reveal that the Dunnock apparently does not breed in Ireland.

My quarrel, however, is with the publishers who, while not stinting (it is a beautiful book), have failed to pay attention to detail. Surely they should have ensured that there was a comprehensive index and an explanation of all conventions used (the reader has to guess that W means wing-span), that captions were not transposed (Shag, page 28) and that literals, including the duplication of an entire line of text (page 144), were eliminated by careful proof-reading. Furthermore, I am sure that Arthur Singer did not approve their dust cover claim that his paintings 'are perfect in every detail of feathering and coloration, anatomy and posture'.

ROBERT SPENCER

**Chemical Fallout—Current Research on Persistent Pesticides.** Edited by Morton W. Miller and George G. Berg. Charles C. Thomas, Springfield, Illinois, 1969. 531 pages. No price given.

This volume contains the 24 papers, and the resulting discussions, given at a conference held in Rochester, New York, on the use, accumulation in nature, and control of two main groups of pesticides—the organomercurials and the organochlorines. The former have caused serious trouble only in Japan and Sweden, where fish for human consumption has had to be banned in some areas. In Sweden, where bird declines also occurred, the mercurial seed-dressings have been withdrawn and major changes made in the techniques of paper-making as a result. Organochlorine residues, in contrast, are now found throughout the world and their uses are being steadily restricted in the developed countries.

The papers were addressed to a specialist audience, but some have a wider interest. Dr J. Robinson argued that the decline of certain predatory birds in the 1950's in Britain could not be related to organochlorine pesticides 'with any degree of practical certainty'. As many experts have been impressed by the growing weight of evidence that DDT and other organochlorines affect the calcium metabolism of birds, leading to thinner egg-shells and reduced breeding success in some predators, gulls and pelicans, this sparked off the most lively debate of the conference. C. F. Wurster, in a later paper, concluded

that they were a probable cause of the widespread diminished reproduction of carnivorous birds. These effects have since been demonstrated in controlled experiments on the Mallard and the American Kestrel, while H. B. Ginn (*Bird Study*, 16: 210-248) has responded to Dr Robinson's suggestion that the feasibility of using nest record and ringing data as indices of population changes should be critically examined. Dr R. W. Risebrough gave a thought-provoking summary of the widespread pollution of marine ecosystems by chlorinated hydrocarbons, with DDE most concentrated in marine birds, especially shearwaters, and PCB residues (a possible new menace from industry) now widely distributed in the Pacific Ocean, mainly, he suggested, by winds. Drs A. G. Johnels and T. Westermarck described how they used mercury residues in the feathers of museum specimens to chart the rise of levels in Sweden, and Dr S. G. Herman and his colleagues revealed that the Western Grebes of Clear Lake, California, were still, in 1967, heavily contaminated with DDD.

STANLEY CRAMP

**Nature Conservation in Britain.** By Dudley Stamp. Collins, London, 1969. 273 pages; 23 black-and-white photographs; 5 maps. 36s.

Sir Dudley Stamp completed *Nature Conservation in Britain* just before his death in 1966 without having the opportunity of seeing the proofs of what was to be his fourth and final contribution to the 'New Naturalist' series. The book provides a logical sequel to the same author's *Britain's Structure and Scenery* and *Man and the Land*. He introduces his subject by placing it firmly in the context of the wider issue of world resource conservation and the problems of an ever expanding population over a known and static area of land and water. This is followed by a useful survey of the development of nature conservation in Britain, made more interesting by the author's own early personal involvement in the movement. The problems and achievements of nature conservation over the country as a whole are reviewed in seven short chapters dealing with each of the Nature Conservancy's seven regional areas.

In spite of the familiar Stampian scholarship and clarity of exposition that marks the book, the overall impression is still one of disappointment. This is not primarily due to the inevitable problems attending the publication of a book in a rapidly advancing subject two and a half years after completion, but rather to the fact that, in spite of the wealth of information it contains, it is lacking in a consideration of the underlying principles responsible for the conservation policies and attitudes that it describes. As a consequence, much of the book is concerned with what is being done without explaining why. This lack of attention to a basic conservation philosophy results in a somewhat inconsistent treatment which regulates

certain important issues to a backrow seat whilst placing undue emphasis on others of lesser significance. For instance, although nature conservation is described as being essentially applied ecology, there is virtually no discussion of the fundamental ecological principles that are vital to an understanding of the problems of habitat management. Consequently, the chapter on the 'Management of Nature Reserves' is a mere five pages long and comprised almost entirely of the Nature Conservancy's *pro forma* management plan together with a digest of that for the Westleton Heath National Nature Reserve. It is now generally accepted that the key to conservation lies in the fields of education and planning, and yet neither of these fundamental issues receives any prominence. Possibly one of the most challenging and far-reaching issues involving nature conservation is the relatively new problem of the impact of recreation pressures on the countryside and it is disappointing that more consideration is not devoted to this serious question. The same could be said about the lack of attention given to the problems of industrial pollution.

On the other hand, the chapters on 'Farming and Wildlife' and 'Forestry and Wildlife' are particularly interesting. The history of agriculture and forestry is traced from earliest times, so emphasising that the problems associated with current changes in the countryside can be properly understood only by viewing them in the context of the continuing process of development and progress in these subjects.

There are four appendices whose potential value is somewhat diminished by the editors' rather erratic attempts to bring them up to date. For example, the list of Field Studies Council field centres is correct, but the roll of wardens is incomplete and the officers named are those for 1966. The information on the Nature Conservancy is up to date, but that for the Council for Nature is not. The list of Conservation Areas is similarly out of date. The bibliography is very incomplete and it is disappointing that some attempt has not been made to remedy this.

DAVID STREETER

## News and comment *Robert Hudson*

**New commission on pollution** The inaugural meeting of the Royal Commission on Environmental Pollution was held on 25th February 1970, under the chairmanship of the eminent botanist, Sir Eric Ashby, F.R.S. The setting up of this Commission is in itself evidence of the serious view of pollution problems now taken by Parliament. Normally, Royal Commissions are short-lived appointments to examine and report on specific issues; but the Royal Commission on Environmental Pollution is to be that rare thing, a standing body. While one may look askance at the prospect of yet another name in the plethora of conservation bodies, yet this new Royal Commission can have a distinctive role. By their very essence, wildlife conservation organisations are biased and do not command too much respect in industry when

interests clash. The new Royal Commission will examine wider aspects of pollution problems, not only those which impinge directly on wildlife, and will be able to exercise independence and impartiality. Whether the Commission will be given adequate teeth remains to be seen, but it could achieve results just by asking awkward questions or issuing public statements. Sir Eric Ashby's eight colleagues include four well-known zoologists—Sir Solly Zuckerman, Professor V. C. Wynne-Edwards, Dr Frank Fraser Darling and Aubrey Buxton; the others are Professor W. Beckerman (a political economist), Dr W. L. S. Fleming (a Bishop and a geologist), Sir John Winniffrith (Director-General of the National Trust) and Norman Iliff (Managing Director of Shell Chemicals).

**Council for Nature news** Following constitutional and financial crises two years ago, the Council for Nature has been going through a difficult period from which it is now emerging. Much of the credit for these improvements is due to Sir Landsborough Thomson, who now retires from the chairmanship in favour of E. Milne-Edwards (President of the Botanical Society of the British Isles). The latter pays a well-deserved tribute to his predecessor in the January issue of *Habitat*, drawing particular attention to Sir Landsborough's efforts to rationalise the British conservation movement through advocating closer liaison between the Council for Nature, the Society for the Promotion of Nature Reserves and the Royal Society for the Protection of Birds. The improved financial position of the Council for Nature will permit the news sheet, *Habitat*, to revert to monthly issues in 1970.

**Birds and overhead wires** If ringing recoveries provide an unbiased sample, as is generally accepted to be the case, then these reveal that over 40% of deaths of Mute Swans are attributable to collisions in flight with overhead wires. This species may present a special case, but it is generally accepted that overhead wires are a serious hazard to bird life. When electrical power lines are concerned, power failures caused by bird collisions are also a nuisance to consumers. Recently, the North Eastern Electricity Board has been experimenting with ways of reducing the number of collisions. On some routes it has been possible to place the conductors (as the overhead lines are properly called) in the horizontal plane, so as to present a single obstruction to a flying bird; and on conductors carrying up to 11,000 volts a thin PVC coat can be put on the wires to prevent electrocution should the wing-span touch both the inner and outer conductors. Experiments to make the lines more visible by spacing corks along them were judged unsuccessful, however, since such markers increased wind loading and therefore the risk of breakage. The technique now developed by the N.E.E.B. is to hang lightweight, six-inch long, black plastic strips from the conductors at six-foot intervals; it is considered that this has reduced the number of bird collisions without endangering the conductors. Apparently the hazard is greatest on lines carrying up to 33,000 volts; at higher voltages it is thought that birds are sensitive to the electric field round the conductors and take avoiding action. On high power lines, therefore, only the earth wire needs taping. Ornithologists would appreciate more information on the Board's view that birds are sensitive to high-voltage electric fields.

**Another serious oiling incident** From 5th January onwards numbers of oiled birds were found along the shores of the Firths of Forth and Tay, in south-eastern Scotland. Though small lumps of oil appeared on beaches, no slicks were sighted until 20th January, when one four miles long was encountered by a fishing boat off Arbroath (Angus); from that date the numbers of oiled birds increased until by 4th February a little over 8,000 had been picked up. Over 30 species were affected, the principal ones being Eider, Guillemot, Razorbill and Common Scoter. The sources of this oil, which ultimately affected coasts from Aberdeen to the Lothians, have not yet been traced. Since at least two distinct types of oil were involved,



however, it is apparent that contamination came from more than one source. In the Forth area, the pollution observed ashore could have resulted from the south-east winds of early January carrying oil and oiled birds inshore from well out to sea. In the Tay area, however, most of the birds seen oiled, both before and after the slick was located off Arbroath on 20th January, were alive. This suggests they had been oiled locally, which idea is supported by the high proportion of Eiders (an inshore species) and the low proportion of auks in the Tay totals. At Arbroath 300-400 yards of the esplanade, which was slightly oiled, were sanded; in other areas the beaches were to be cleaned mechanically when the pollution was finished.

**Another R.S.P.B. film success** Since its inception 13 years ago, the Film Unit of the Royal Society for the Protection of Birds has made over 25 films, of which a number have been outstandingly successful. To this category will, I predict, be added the latest R.S.P.B. production, 'The Winged Aristocrats', which had its première at the Royal Festival Hall on 21st February. This new film is a study of European raptors (including both diurnal birds of prey and owls), the way in which they are adapted to their environments, and the threats which now face them. In illustrating the last no holds are barred, among the sequences being a Kestrel struggling in a pole-trap and Maltese shooters blazing away at flocks of migrant Honey Buzzards; but just as shocking are the threats from habitat destruction and pollution. 'The Winged Aristocrats' is to be shown widely in Britain and Europe during ECY 70.

## Request for information

**Wintering warblers** Unusual numbers of warblers, particularly Blackcaps *Sylvia atricapilla* and Chiffchaffs *Phylloscopus collybita*, have been observed in Britain and Ireland during the 1969/70 winter. A study is being made of their feeding habits, survival and distribution, and details of any warblers seen during December, January and February (species, date, number, location, habitat and, where possible, sex, duration of stay and foods taken) are required by T. W. Gladwin, 99 Warren Way, Digswell, near Welwyn, Hertfordshire.

## Recent reports *P. F. Bonham*

**These are largely unchecked reports, not authenticated records**

The period covered by this summary is September 1969 to March 1970 (see also *Brit. Birds*, 62: 452-456, 501-504, 549-552), but apart from a few belated records of autumn migrants it is concerned only with winter visitors. The next summary will deal with the spring passage in March.

### BEWICK'S SWANS AND WHITE-FRONTED GEESE

Unusually large numbers of these species have been the most remarkable feature of the winter in many areas. Bewick's Swans *Cygnus bewickii* arrived in Teesmouth (Co. Durham/Yorkshire) on 22nd October, increasing to 20 by 1st November, and during this period small parties of two or three appeared in Shetland, Staffordshire, the east Midlands and Somerset. On various dates from 6th to 25th November small herds of two to 20 were seen at a score of localities as far west as Radnorshire, in addition to the regular wintering flock at Slimbridge (Gloucestershire) which on 22nd exceeded 70. Then, on 26th, 45 flew in from the sea at Minsmere (Suffolk), continuing westwards, followed by ten more next day, and a total of



five flew west over Sandwich Bay (Kent) on 24th and 26th, the only direct evidence of what must have been a sizeable influx caused by the sudden onset of very cold weather on 25th with widespread snow as far south as Hampshire. During 27th-30th new arrivals were noted in about 20 localities.

By 15th December the regular wintering flock on the Ouse Washes (Norfolk/Cambridgeshire) had reached 337, and by 18th about 450 different individuals had been recognised at Slimbridge. Further influxes apparently occurred during late December, small flocks of up to 40 being reported from a number of new localities and many more coming on to the Ouse Washes where the next count, on 30th, revealed the unprecedented figure of 900. Totalling the 40 or so reports received for the last week of December, an absolute minimum of 2,100 must then have been present throughout England and Wales. This compares with a previous 'high' of about 1,600 in the winter 1955/56 (*Brit. Birds*, 52: 393-416) and annual maxima of 1,300-1,400 for the winters 1965/66 to 1968/69 (*Brit. Birds*, 62: 505-522).

By mid-January the Ouse Washes flock had decreased considerably, but on the Somerset levels numbers had built up to at least 200, with 500 more in the Severn Estuary (mainly at Slimbridge). The Trent Valley (Nottinghamshire) held over 400, mainly on the levels in the north of the county. These numbers were the highest ever recorded in each of these three areas, and in addition many small parties (some up to 50) were widely distributed over England and Wales, mainly on flood-water and reservoirs. Reports of return passage during March included a herd of 78 flying north-east over Beeley Moor (Derbyshire) on 14th and 60-70 heading east out to sea at Walberswick (Suffolk) on 16th. During the winter reports were received from well over 100 localities. The main influxes coincided with the onset of cold easterly weather with hard frosts and sometimes snow, and must have resulted from the freezing of the species' wintering areas in the Netherlands. The proportion of juveniles to adults was very low for the third successive winter: of the order of 10%, compared with 25% at Slimbridge in the winters before 1967.

The first White-fronted Goose *Anser albifrons* was seen at Belvide Reservoir (Staffordshire) on 8th October with a Grey Lag Goose *A. anser* and a Barnacle Goose *Branta leucopsis*, also both early, and perhaps none of these were wild birds. At Slimbridge there were six on 20th, increasing to 21 by 24th, and three on the Isle of Sheppey (Kent) on 26th completed the picture for October. Apart from slowly increasing numbers at Slimbridge (80 by 19th November) and on the Isle of Sheppey (60 by 25th) only a few records of November arrivals were received. During the first week small parties of Greenland White-fronts *A. albifrons flavirostris* appeared at Loch Leven (Kinross-shire) and Eye Brook Reservoir (Leicestershire/Rutland), and on 4th a flock of 45 (race not determined) arrived at Leighton Moss (Lancashire), the first record for this reserve; perhaps these were also of the Greenland form, of which a few hundred regularly winter in south-west Scotland. On 29th November, 200 unidentified grey geese were seen at Dungeness (Kent) and a similar number, provisionally identified as White-fronts, flew WSW over Attborough (Nottinghamshire). There must have been a considerable arrival at about this time (*cf.* Bewick's Swans) with 550 on the Isle of Sheppey by 7th December, 2,670 at Slimbridge by 18th and a number of inland records of small flocks. It was not until January that the species or, at least, the typical race *A.a. albifrons* was obviously much more widespread than usual, with the main influx during the first half of the month. Numbers were very high in all the regular wintering areas: 400 in the Yare Valley (Norfolk), 1,600 in the Avon Valley (Hampshire), 1,700 in north Kent and 7,600 at Slimbridge with many other reports elsewhere along the Severn Estuary. In other areas wintering flocks of up to 150 were reported during January and February from over 40 localities, many far inland. Belvide Reservoir, which began this summary, also provides the conclusion—four birds of the Greenland race arrived on 14th February joining the 40 *A.a. albifrons* that had been there since mid-January.

## OTHER WILDFOWL

Records of **Whooper Swans** *Cygnus cygnus* away from Scotland and northern England indicated a rather poor winter, the largest flocks comprising 32 on the Ouse Washes on 13th February and 43 which came in from the sea at Havergate (Suffolk) on 14th March. For the first time in five years no **Lesser White-fronted Geese** *A. erythropus* appeared. Following six **Barnacle Geese** on St Agnes (Isles of Scilly) on 29th September, there were few records of other than single birds away from the usual northern wintering areas until January. About 100 appeared on the north Norfolk coast during the first week, many staying throughout the month, and a total of nearly 80 occurred at Minsmere between 10th and 12th, mostly flying south. A flock of 29 rested in a cliff-top field in north Devon on 4th January. Several other reports of six to eleven came from Warwickshire, Kent and the Severn Estuary during January and February. Up to 40 **Bean Geese** *A. fabalis fabalis* frequented Grindon Lough (Northumberland) during February and March, and seven wintered in Teesmouth and 66 in the Yare Valley. In Kent, four were seen at Sundridge on 15th November, then three at Sandwich Bay on 4th January, perhaps the same as three in Egypt Bay next day, and, also on 4th, a ringed individual at Bough Beech. Other scattered records of single Bean Geese may possibly have referred to escapes and the same applies to single **Snow Geese** *A. caerulescens* at Stodmarsh (Kent) and Bittell (Worcestershire) and two at Holkham (Norfolk).

The Ouse Washes had the largest concentration of surface-feeding duck *Anas spp* including, on 30th January, no less than 2,410 **Pintail** *A. acuta* and 36,000 **Wigeon** *A. penelope* (about 20% of all the Wigeon in Britain at that time). This area also produced an unusual ringing recovery when a Spanish-ringed **Gadwall** *A. strepera* was collected from a wildfowler in January. Other notable gatherings of duck were reported from Kent: 330 **Pintail** on the Thames off Abbey Wood (only about ten miles from central London) on 28th December, and 780 Pintail and 10,900 **Wigeon** in the county in mid-January; these numbers, however, are not exceptional. The only rare ducks reported all appeared in late March: a male **Ring-necked Duck** *Aythya collaris* at Slapton (Devon) and drake **King Eiders** *Somateria spectabilis* at Kirkcolm (Wigtownshire) and in Ronas Voe (Shetland).

## SHEARWATERS, EGRETS AND SPOONBILLS

In addition to those in the November issue (*Brit. Birds*, 62: 501), a late report of four **Sooty Shearwaters** *Puffinus griseus* on 2nd November came from Dungeness. Also in Kent, three **Manx Shearwaters** *P. puffinus* were seen off Dover on the unusual date of 18th February. Apart from the eight records of **Little Egrets** *Egretta garzetta* in the October issue (*Brit. Birds*, 62: 454), one was found dead as far north as Loch Portain (North Uist) on 29th October and a second individual joined the one on Gann Flats (Pembrokeshire) during its stay; one of these is believed to have overwintered in the area as a Little Egret was seen in south Pembrokeshire on various dates during March. One at Loch Feochan, Argyll, also probably overwintered. Again referring back to the October issue, a **Spoonbill** *Platalea leucorodia* which arrived at Ogston (Derbyshire) on 9th November may have been the one which flew west over Donna Nook (Lincolnshire) with three Whooper Swans on the 8th. More recently, another Spoonbill arrived at Minsmere on 13th March.

## RAPTORS

After the various reports of eagles in England last autumn, most of which had probably escaped from captivity, the same origin must inevitably be suspected for the adult **Spotted Eagle** *Aquila clanga* at Sandwich Bay on 5th January. Single **Rough-legged Buzzards** *Buteo lagopus* were reported from the Isle of Sheppey, the Minsmere/Walberswick area, Halvergate (Norfolk) and the Winterton/Horsey area (also Norfolk), as well as the six in the October issue (*Brit. Birds*, 62: 456). A **Goshawk** *Accipiter gentilis* at Broxbourne (Hertfordshire) on 25th January was soon followed

by another at Weybourne (Norfolk) on 1st February; a third was present at Kergord (Shetland) during March. Two **Gyr Falcons** *Falco rusticolus* appeared on Fair Isle (Shetland): a white ('*candicans*') male on 7th January, a female on 25th February.

#### QUAILS, CRAKES, CRANE AND BUSTARDS

There were no less than three reports of **Quail** *Coturnix coturnix*, a species rarely recorded in winter: one at Rushenden, Isle of Sheppey, on 26th December, a female shot at Wyberton, Boston (Lincolnshire), on 31st January and one at Benacre (Suffolk) during February and March. A **crake**, either **Little Porzana parva** or **Baillon's** *P. pusilla*, was present at Hersham sewage-farm (Surrey) from 17th to 20th December and another, probably a **Little Crake**, was seen at Stanpit Marsh, Christchurch (Hampshire) on 27th March. A **Crane** *Grus grus* was an unusual visitor to Abberton Reservoir (Essex) on 8th March. Even more unexpected, however, were the three **Great Bustards** *Otis tarda* which appeared in January, the first since 1963 and the only time this century that more than a single one has been seen: a very weak individual arrived on Fair Isle on 10th, and two were seen together near St Margarets-at-Cliffe (Kent) on 11th. The one on Fair Isle was captured and fed for several weeks before being released.

#### WADERS AND GULLS

Beginning with American vagrants, pride of place goes to the adult **Franklin's Gull** *Larus pipixcan*, the first European record, found at Farlington (Hampshire) on 21st February and still present at the end of March. Usually seen among a small flock of Common Gulls *L. canus* and Black-headed Gulls *L. ridibundus*, it stands out at a glance by its small size (slightly smaller than Black-headed) and rather dark back and wings; it is somewhat similar to a small Laughing Gull *L. atricilla* but with white spots on the black wing-tip which is separated from the rest of the wing by a broad white band. For the third successive year an adult **Bonaparte's Gull** *L. philadelphia* was seen at St Ives (Cornwall) for most of March. The only American wader reported was a **White-rumped Sandpiper** *Calidris fuscicollis* in Swansea Bay on 19th March.

There was quite an exceptional gathering of 2,800 **Snipe** *Gallinago gallinago* near Ilchester (Somerset) on 15th February, and the largest winter flock of **Ruffs** *Philomachus pugnax* reported was 200 near Welney (Norfolk). Two **Grey Phalaropes** *Phalaropus fulicarius* stayed at Hartlepool (Co. Durham) for most of February and March. A **Ross's Gull** *Rhodostethia rosea* off Yell (Shetland) on 22nd October and an **Ivory Gull** *Pagophila eburnea* between Ardnamurchan and Coll (Argyll) at the end of November were reported too late to include in the summary of autumn gulls (*Brit. Birds*, 62: 502). A **Great Skua** *Stercorarius skua* was seen at Sand Bay (Somerset) on 3rd February and a dark phase **Pomarine Skua** *S. pomarinus* at Goring-by-Sea (Sussex) on 10th March (even earlier than the one seen at Sandwich Bay on 16th March 1969.) **Mediterranean Gulls** *Larus melanocephalus* were reported from Northumberland (two), Co. Durham (three or four), Norfolk, Kent (three) and Sussex.

#### WINTERING WARBLERS AND OTHER SUMMER VISITORS

Unprecedented numbers of **Blackcaps** *Sylvia atricapilla* and **Chiffchaffs** *Phylloscopus collybita* were observed during the winter. About 350 records of Blackcaps and 125 of Chiffchaffs received for December, January and February were similarly distributed over the country with, as usual, the greatest strength in south-west England, a third of the records coming from the peninsular and Channel counties. The most dramatic increases, however, were from the areas of the Severn and Avon valleys (20% of all records), the Trent Valley (15%) and, to a lesser extent, the English counties north from Yorkshire (10%). Only small numbers were reported from Scotland, Wales and East Anglia where nonetheless both species were more



numerous than usual. Forty-one records of Blackcaps from northern England and Scotland showed a ratio of six males to one female, while for 107 from south and south-west England the ratio was only 1.2 to 1. The number of multiple records of Blackcaps was also unusual: 14 records referred to three or more birds at the same site and 44 to 'pairs' (male plus female). Many of these warblers, particularly those Blackcaps visiting gardens, remained at the same site throughout the three-month period. Even more unusual were single wintering **Garden Warblers** *S. borin*, at Rugby and Barford (both Warwickshire), at Huncote (Leicestershire) and at Netherfield (Nottinghamshire), and two together at Attenborough (also Nottinghamshire). A **House Martin** *Delichon urbica* was seen at Foreness Point, near Margate (Kent), on various dates during January and February and, also in Kent, a male **Yellow Wagtail** *Motacilla flava* at River, near Dover, on 25th February seems likely to have wintered here.

#### REGULAR WINTER PASSERINES

**Shore Larks** *Eremophila alpestris*, first reported from Spurn (Yorkshire) on 8th October, were widely distributed down the east coast with additional observations of two parties of five each in Sussex, four at the Needles (Isle of Wight), the first record for the island, five well inland at Grafham Water (Huntingdonshire), five again on Bardsey (Caernarvonshire) and two in Somerset. Apart from 50 at Weybourne as early as 26th October, numbers did not build up until well into December, with maxima of 110 at Donna Nook, 60 at Holkham, 50 at Bradwell (Essex), 40 in north Kent and 17 at Dover, an unusually large number for a locality so far south. The situation then remained fairly static, 120 at Donna Nook on 31st January being the largest flock reported during the winter. Kent had an extraordinary number of wintering **Woodlarks** *Lullula arborea* with maxima of four at Dover, seven at Sandwich Bay and 15 at Dungeness.

Single **Waxwings** *Bombicilla garrulus* were seen at Donna Nook on 27th November, at Hythe (Kent) on 29th and at two localities during December, but these were the only reports until a small arrival in early January resulted in widely scattered records of some 70 birds as far north as Northumberland. The first **Great Grey Shrike** *Lanius excubitor* was a migrant on Fair Isle from 25th to 30th September, followed by one at Minsmere on 4th October. An influx on about 12th October produced four at Spurn and six singles elsewhere, and subsequently 30 or so were reported during the winter from the Midlands and east coast counties as well as Caernarvonshire, Radnorshire, Glamorgan, Oxfordshire and Middlesex, and also two at Beachy Head (Sussex). Mid-October also saw the first Scandinavian **Twites** *Acanthis flavirostris*, but numbers were not particularly high until late November when a flock at Sandwich Bay reached 120. During the winter up to 140 were seen at many places between Northumberland and Sussex, particularly in Kent and East Anglia, and, in addition, up to 18 were present at Vane Farm (Kinross-shire), the first to be recorded at this reserve. A flock of 30 **Mealy Redpolls** *A. flammea flammea* was reported from Sevenoaks (Kent) on 30th March.

Single **Snow Buntings** *Plectrophenax nivalis* were seen at 16 inland localities as well as two at Rainham (Essex), four on the Cheviot (Northumberland) and the usual flocks all down the east coast, with a few on the south coast and in the Severn Estuary. The first reports were of singles at Donna Nook on 1st September and at Holme and Cley (both Norfolk) on 7th, followed by two on Fetlar (Shetland) on 10th. Large numbers did not occur until late October (50 at Weybourne on 31st) and early November (150 at Holme on 9th, the largest flock reported during the winter). **Lapland Buntings** *Calcarius lapponicus* were scarce, with only 27 records between 23rd August and the end of the year: all were on the east coast save three on the Ribble Marshes (Lancashire), two in Somerset and singles on St Agnes (Isles of Scilly) and the Ouse Washes. The only evidence of return passage was provided by singles at three localities between 16th February and 22nd March.



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# *British Birds*

## The birds of Foulness

*Peter Rudge*

*Plates 8-10*

Foulness and the Maplin Sands (fig. 1) are essentially a vast triangle of sand, mud, saltings and grassland, roughly eight miles across the base and ten miles long, on the Essex coast between the River Crouch and the River Thames. Foulness, New England and Havengore islands and the area of Landwick form the western part. They are covered with a layer of mould and clay, and attain a maximum altitude of eleven feet, but much of the area lies below sea level. The three islands are protected by a common sea-wall, but are separated from Landwick by Havengore Creek. The land mass is divided from the mainland of Essex by the Rivers Crouch and Roach in the north and west respectively, while to the south a series of creeks separate it from higher ground and communicate with Havengore Creek as it passes east to the Thames Estuary. To the east are the vast Maplin Sands.

During the past 15 years the military authorities, who are the landowners, have permitted a number of local ornithologists to visit parts of the area. The military presence has somewhat restricted the amount of observation possible, but has helped to preserve what is now one of the most important coastal nature reserves in Britain. The whole is currently threatened by development schemes, the most immediate being the proposal that the new London airport be sited on the Maplin Sands (1969, *Commission on the Third London Airport: Papers and Proceedings*, vol 3). It thus seems timely to record the ornithological data obtained in recent years, dividing the area into broad habitats.

### (1) SEA.

The region beyond low tide level has been only sparsely investigated, and data are few for a potentially most interesting part of the Thames



Estuary. A variety of wildfowl are found here, but the counts in table 2 are undoubtedly underestimates. Among other species, Common Scoters *Melanitta nigra* are seen throughout the year, with a suggestion that they occur most often in early winter. In the late 1950's, however, an attempt to obtain more representative figures by watching from a tower three miles east of Foulness Point revealed a raft of 3,500 Common Scoters on 30th August, indicating that numbers may gather to moult in the estuary in late summer. Eiders *Somateria mollissima* occur in small parties: although formerly present only in the winter, they have undoubtedly increased over the past few years and up to 40, mostly immatures, are now found in the Crouch Estuary throughout the summer (cf. Taverner 1959, etc.). Other wildfowl roost in the area during the day, but little is known of their behaviour or of that of the gulls discussed in the next section. Occasional maritime species, such as Gannets *Sula bassana*, Kittiwakes *Rissa tridactyla* and skuas *Stercorarius spp*, occur particularly in autumn, and divers *Gavia spp* and grebes *Podiceps spp* in winter.

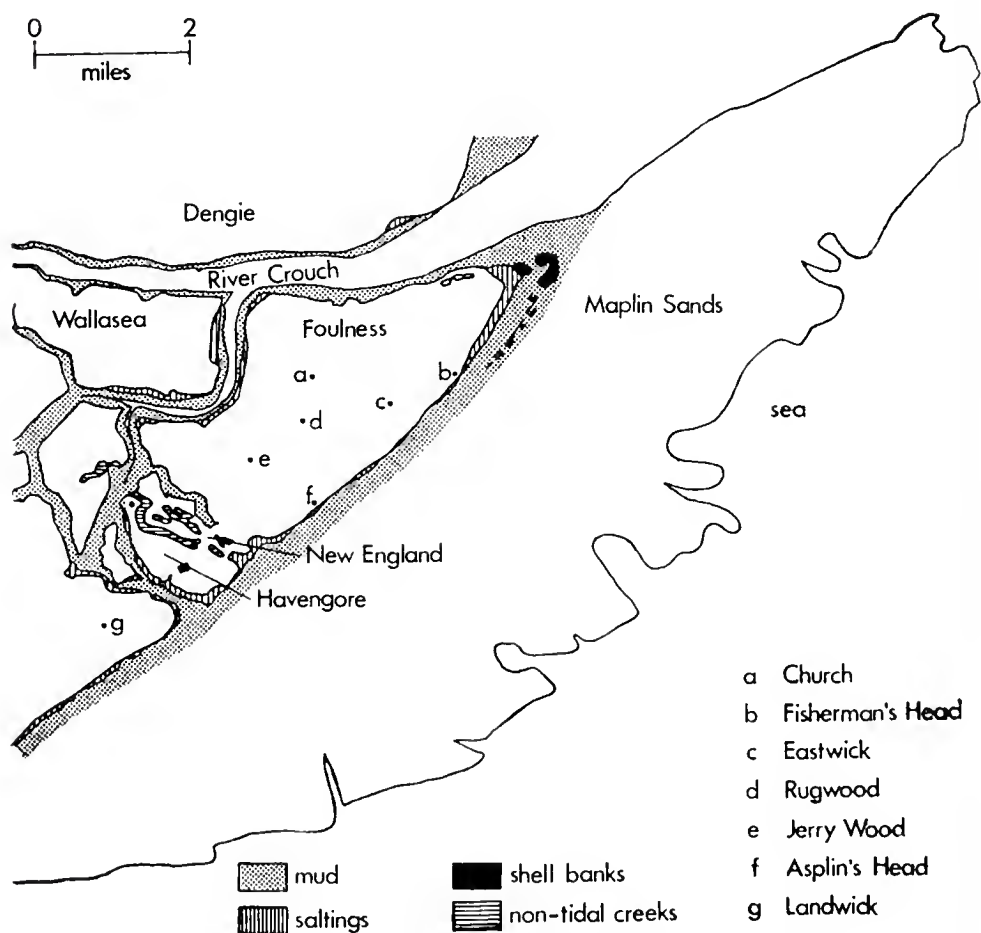


Fig. 1. Map of Foulness and the Maplin Sands, Essex, showing the main habitats and localities mentioned in the text

## (2) SAND AND MUD-FLATS

This is the region of greatest importance, a unique ecosystem in the area known as the Maplin Sands. The muddy creeks are an extension of it, but are of lesser significance. The vast sand-flats lying between the sea and a narrow strip of mud adjacent to the saltings comprise the major portion. The flora of the sand is sparse and consists chiefly of the green alga *Enteromorpha*, which grows most luxuriously towards the sea. Numerous shallow pools left by the retreating tide harbour a variety of invertebrates, while the sand contains astronomical numbers of these. Near the saltings, the sand gives way to a narrow strip of mud on which a vast bed of the eel-grass *Zostera noltii* is found. This area of *Zostera* is interrupted only by Havengore Creek, but is not entirely uniform, especially between Fisherman's Head and Foulness Point. A small amount of *Zostera* does extend for a short distance on to the sand-flats. Large patches of cord-grass *Spartina* are also found on these mud-flats and there is some evidence that they are extending. It is of interest that the major species is *S. maritima*, as this is normally found only at much higher elevations, having given way in lower places to the hybrid *S. townsendii*. This hybrid does occur here, however, and may even now be replacing the *S. maritima*. The Crouch and the Roach, and many smaller creeks to the south, have areas of mud exposed at low tide; these are usually steeply shelving and hold many invertebrates and some *Enteromorpha*, but no *Zostera*.

The saltings between the mud-flats and the sea-wall, are extensive only at Foulness Point (plate 10c) and Havengore, Head, most of the remainder of the island being surrounded by a narrow interrupted strip which gives way to a concrete sea-wall along the lower part of the Crouch. There is evidence that the saltings are eroding, this being particularly marked off Fisherman's Head, while on the Roach and Havengore Creek they are cliffed. All this area is intersected with numerous deep creeks. The main plant species of the saltings are those commonly found in such places, including sea poa *Puccinellia maritima*, sea purslane *Halimolobos portulacastris*, thrift *Armeria maritima*, sea lavender *Limonium vulgare*, sea plantain *Plantago maritima*, glass-wort *Salicornia* spp and seablite *Suaeda maritima*. At Foulness Point there are strips of shrubby seablite *Suaeda fruticosa*, and the most extensive growth of *Spartina maritima* in Britain.

## Wildfowl

The vast *Zostera* bed on Foulness sands is the main early wintering ground in Britain for the Dark-bellied Brent Goose *Branta bernicla bernicla* and probably the most important in the world for this subspecies (shown in plates 8 and 9). In table 1 it can be seen that the maxima usually occur in late November (although there is some evidence that the peaks were a little later than this in the early 1960's).

In October and November well over 80% of all the Brent Geese in Essex are found on Foulness (fig. 2), but the numbers fall after that and by January the figure is only 30%. Then, however, there are many more at the less favoured sites with more limited areas of *Zostera* elsewhere in Essex and thus the county total remains unchanged. This probably indicates that the Essex Brent Geese assemble first in the area of Foulness and then disperse to alternative sites as the food supply is exhausted. Certainly by January the *Zostera* is greatly diminished by grazing. At this time, too, the shallow pools left by the tide frequently freeze and the ice has a marked scouring effect as the next tide rises, scraping much of the remaining *Zostera* from the mud.

The first Brent Geese appear in late September or early October, but it is not until the first two weeks of November that the main mass arrives. Initially they spend only brief periods on the *Zostera* beds after the tide has receded, before flying out to roost on the shallow water some two or three miles offshore. A small supply of *Enteromorpha* is available there, but none of the deep-water *Zostera marina*, and they do not seem to feed. It may be that the plentiful supply of *Z. noltii* on the flats enables them to obtain sufficient food in a relatively short time after each high tide. By early November the geese spend much less time at sea, and by the middle of that month they remain on the *Zostera* all day. At high tide some fly along the tide line towards Foulness Point, where the mud is still exposed; while the majority roost on the sea over their feeding area. Some of those going to the point cross the Crouch to the Dengie peninsula and this behaviour becomes more marked in the spring at the end of the shooting season. As the tide falls, these birds return, while those that have remained walk on to the exposed mud and begin to feed. Sometimes they will take loose *Zostera* off the surface of the sea.

**Table 1. Numbers of Dark-bellied Brent Geese *Branta bernicla bernicla* at Foulness, Essex from 1961/62 to 1969/70, with total world and English populations and proportion of juveniles to show annual breeding success**

A dash indicates an ineffective count or none at all and a number in brackets an incomplete one, while an asterisk shows that Foulness Point was excluded. The data on the total populations and proportions of juveniles are taken from Ogilvie and Matthews 1969 and M. A. Ogilvie *in litt.*

	Oct	Nov	Dec	Jan	Feb	Mar	World	England	Juveniles
1961/62	—	(1,444)	6,677	4,286	794	320	22,000	13,000	3%
1962/63	22*	4,288	3,679*	3,128	1,495	77	23,000	15,200	<1%
1963/64	—	3,692*	5,327*	1,891*	1,142*	—	23,500	11,600	35%
1964/65	123	3,757	5,292	1,864	1,854	1,242	25,000	10,000	7%
1965/66	250	7,074	4,564	5,883	2,712	172	25,000	14,000	35%
1966/67	689	6,136	5,724	2,837	1,758	540	30,500	15,600	40%
1967/68	39	6,908	5,705	4,145	2,463	396	29,000	16,000	6%
1968/69	1,205	6,794	4,926	3,629	1,240	863	26,000	13,700	<1%
1969/70	612	5,130	4,178	3,517	2,939	1,194	(not yet calculated)		

The Brent Geese feed in flocks of 20 to 1,000, their favoured sites being from Fisherman's Head to Foulness Point and all the foreshore down to Waking Stairs (especially off Eastwick, Asplin's and Havengore Heads). Rarely do they penetrate far along the Crouch, although they have been seen some miles up this river in hard weather. It is also exceptional for them to move on to the fields to graze, although in the severe winters of 1962/63 and 1968/69 up to 300 came on to the grassland at Havengore and along the Crouch. If disturbed they will fly short distances, rarely exceeding a mile, to another feeding area on the *Zostera* beds. If frequently disturbed they tend to move farther out on the mud, but are reluctant to go on to the sand where there is no *Zostera*. Aircraft cause considerable disturbance, the geese flying up in a great wheeling mass and often breaking up into several smaller parties which settle some distance away, frequently in the direction of the sea. In the second half of the winter the number of geese diminishes, so that by early February there are no more than 2,000 feeding in the area and by the end of March only a few hundred remain. These gradually move away, stragglers staying on to the end of April and occasional pricked birds through May.

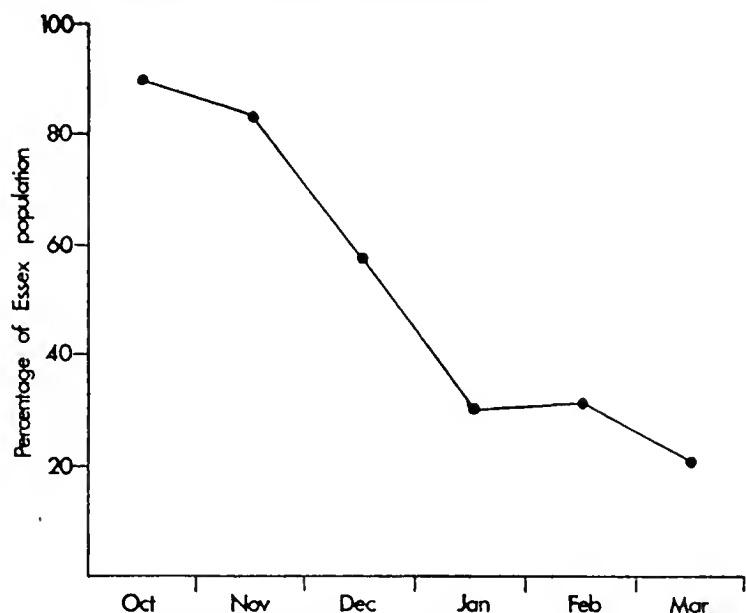


Fig. 2. Monthly percentages at Foulness of the Essex population of Dark-bellied Brent Geese *Branta bernicla bernicla*

The importance of Foulness for this rare goose is indicated in the right-hand part of table 1, which shows the world and British populations and the variable breeding success as indicated by the percentages of juveniles. It should be noted that two consecutive breeding failures in 1967 and 1968 caused a fall of 10% in the world population. The fact that the total count on Foulness remained constant can presumably



be explained by the abundant local food supply, it being likely that the population is controlled by the rate at which the geese exhaust the food and by the number that can be accommodated at other sites.

Other black geese are very rare on Foulness. The Pale-bellied race of the Brent Goose *B. b. brota* is observed only occasionally at intervals of years, but in February 1957 and again in February 1958 a bird indistinguishable from the Pacific race (or Black Brant) *B. b. nigra* was recorded (see *Essex Bird Reports*). Barnacle Geese *B. leucopsis* were seen only once during 1960-69, while grey geese *Anser spp* are also unusual and more commonly found on agricultural land.

**Table 2. Winter numbers of wildfowl at Foulness, Essex, 1964/65 to 1968/69**

A dash indicates an ineffective count or none at all and a number in brackets an incomplete one

	Sep	Oct	Nov	Dec	Jan	Feb	Mar
<b>Mallard <i>Anas platyrhynchos</i></b>							
1964/65	189	9	139	30	272	128	52
1965/66	—	168	43	5	62	59	50
1966/67	—	128	146	559	373	262	81
1967/68	—	123	622	98	92	380	73
1968/69	—	264	303	180	69	151	129
<b>Teal <i>Anas crecca</i></b>							
1964/65	4	27	38	39	15	19	5
1965/66	—	—	7	—	40	26	9
1966/67	—	5	36	74	119	22	19
1967/68	—	11	96	11	30	46	23
1968/69	—	47	27	105	34	6	40
<b>Wigeon <i>Anas penelope</i></b>							
1964/65	3	1,952	(133)	1,251	17	20	70
1965/66	—	(17)	1,041	1,371	1,460	196	8
1966/67	—	—	1,129	336	1,011	206	118
1967/68	—	765	2,060	128	2,460	506	(104)
1968/69	—	957	791	1,830	1,758	1,434	144
<b>Shelduck <i>Tadorna tadorna</i></b>							
1964/65	1	26	82	18	62	36	115
1965/66	—	7	35	111	67	73	249
1966/67	—	6	88	11	319	126	94
1967/68	—	15	69	47	253	99	103
1968/69	—	3	164	249	111	124	136
<b>Mute Swan <i>Cygnus olor</i></b>							
1964/65	50	40	80	50	(50)	12	5
1965/66	—	(1)	51	49	11	11	17
1966/67	—	47	(80)	55	82	60	39
1967/68	—	40	110	12	—	18	25
1968/69	—	62	255	69	35	35	23

Of the other wildfowl in the area, Wigeon *Anas penelope* are by far the most numerous (table 2). They are winter visitors, the first being seen in late August. Numbers build up to 1,700 by November and remain at this level until February when they start to decline, all leaving by April. There is some evidence that these ducks have increased on Foulness in recent years. They form small flocks of 50 to 250 on the flats, where they feed on *Zostera* and *Enteromorpha* with the Brent Geese, although the two species do not mix closely. The Wigeon spend some time out on the sea, but it is not known whether they feed or simply roost there. On the eastern side of the island these ducks have a marked tendency to congregate off Havengore and Foulness Point, but they are much less common off the remainder of the shore. They frequently come on the fleets and dykes of the island, there being a regular flock of 100 to 300 on the main Havengore Fleet, and they occur to a lesser extent on the fleets along the Crouch. They are also seen in small parties over the Crouch and Roach. There is an evening flight inland over Foulness Point and Havengore to the fleet and other bird flocks likely to be this species can be seen on the radar at Southend Airport travelling high and far inland.

The remaining wildfowl are not confined to the foreshore and counts of the commoner species only are shown in table 2.

### Waders

Large numbers of waders occur over the whole sand and mud area throughout most of the year. Accurate totals are not available, but approximate maxima and the times of occurrence are known, as are the details of local movements. All the waders take part in essentially the same movements, which are governed by the tides, although there are minor variations and the extent of particular ones depends on the species. All the waders occurring on Foulness are represented here, apart from Lapwings *Vanellus vanellus* and Golden Plovers *Pluvialis apricaria*. They feed over the entire extent of the flats in a fairly uniform manner, but the species are more limited along the rivers. As the tide rises, they move towards the sea-wall, usually by short flights individually or in small parties. When the sea approaches the saltings, there is a tendency for the waders to group and fly along the tide line to the north and south over the sands. In general, although this varies, those feeding to the north of Asplin's Head fly towards the Point, while those to the south fly to Havengore Head. The movement increases as the strip of soft mud is covered, when parties of ten to 200 waders can be seen flying parallel with the eastern sea-wall to their high tide roosts. Some (such as Knots *Calidris canutus* and Oystercatchers *Haematopus ostralegus*) remain in distinct flocks, while others (such as Curlews *Numenius arquata* and Bar-tailed Godwits *Limosa lapponica*) mix more freely.

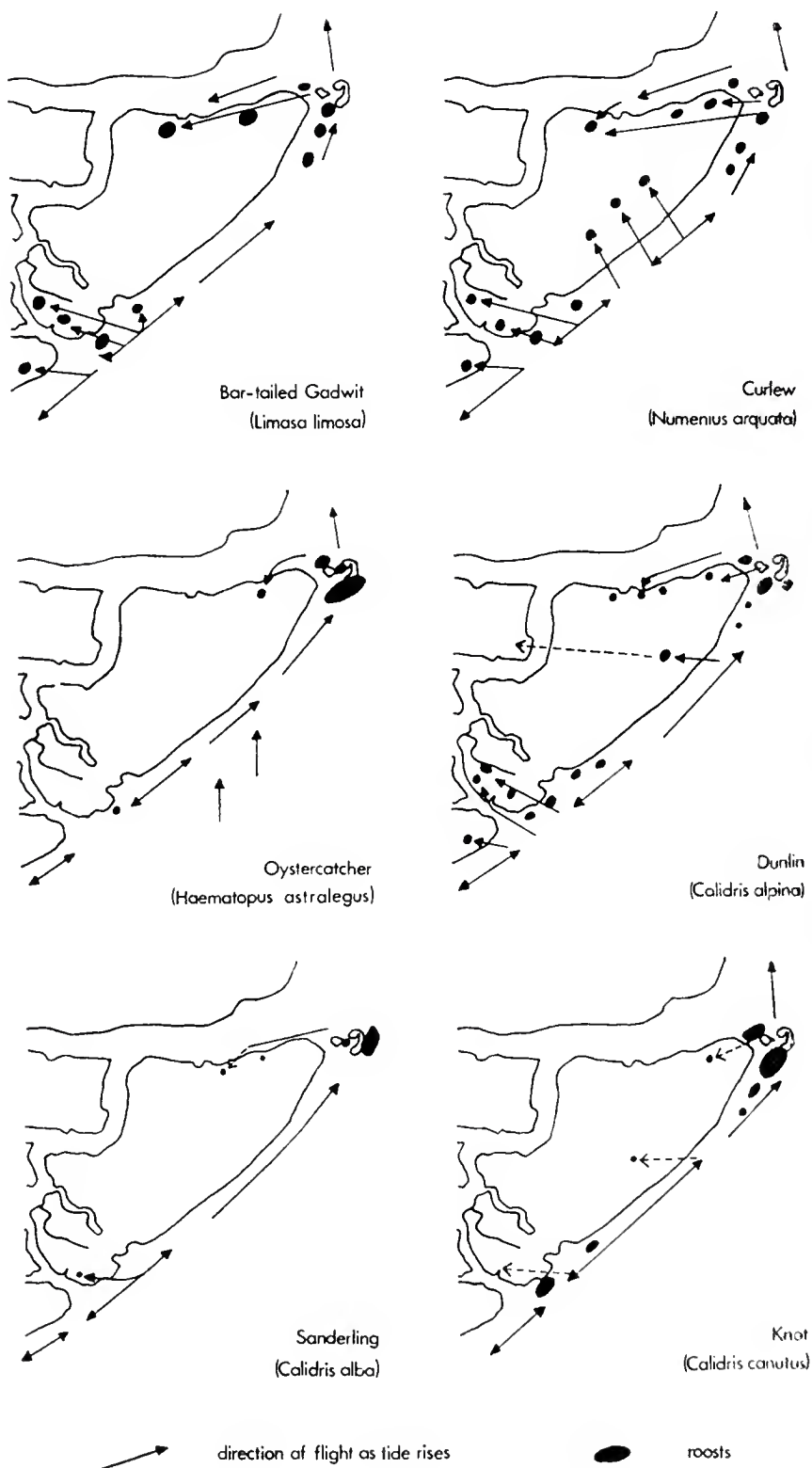


Fig. 3. Local movements of the six commonest waders in the Foulness area, Essex, showing the positions of high-tide roosts

At neap tides the waders go to high tide roosts on the saltings, especially at Foulness Point or the shell banks and Havengore Head. Even at these low tides, however, there is a tendency for some to come on to the islands, a phenomenon that increases with the height of the tide. The favoured sites for the inland roosts are on the arable fields at Havengore, Landwick and Rugwood, and along the Crouch. The saltings at Foulness Point and Havengore are higher and more extensive than elsewhere and are therefore the last to be covered with water; the shell banks are always above the high water mark. Small numbers of waders cross the Crouch to roost on the Dengie peninsula to the north and then move back as the tide falls.

The local movements of the more important species of waders are shown in fig. 3. Bar-tailed Godwits (fig. 3a) utilise the Maplin Sands as their main wintering haunt in Essex and some are present in every month. Maxima of up to 3,000 may occur in late September and early October, but the usual wintering population is between 1,100 and 1,500. This number remains constant throughout each winter and then declines in early spring, only small flocks of up to 150 being seen later. Movements with the tides follow the usual pattern outlined above, but this species also has a marked tendency to come on to the fields of Havengore and Landwick and those along the Crouch. Curlews (fig. 3b) are found throughout the year with maxima of at least 3,500. Flocks are confined chiefly to the Maplin Sands where they mix with other waders, especially the godwits, but smaller parties come on to the fields with the godwits to feed and often to roost.

Oystercatchers (fig. 3c) occur over most of the mud-flats, especially to the east of the islands. There is good evidence that both the size of the permanent winter flock and the duration of its stay have increased over the past decade. Thus the winter population has risen from about 1,200 in 1957 to between 3,000 and 4,000 in 1968. Formerly numbers began to build up in September, but now this increase starts as early as July. Further, a small flock of 200 is present in summer (whereas ten years ago there was none) and some now breed. At Foulness Point two or three pairs are found on the saltings and shell banks, while several others nest on the Havengore saltings and also inland, a total of a dozen pairs altogether. Peak numbers still occur in the autumn, these presumably being migrants passing on to more southerly winter quarters. The approximate populations in each month are shown in fig. 4, which uses fairly accurate counts made in 1965. It should be noted, however, that the 6,000 shown is the most ever recorded; it is not known whether this reflects the more accurate census work at that time or whether it was a chance occurrence. Oystercatchers feed over the whole area, but show a marked tendency to congregate at high tide between the shell banks at Foulness Point in a single flock of about 3,000. The pattern of local movements is



similar to that of the other waders, but this species shows less of a tendency to come on to the land in any numbers. Small parties often cross to Foulness from Kent at high tide and fly up to the Point. Other smaller concentrations are found off Havengore and Wakering Stairs.

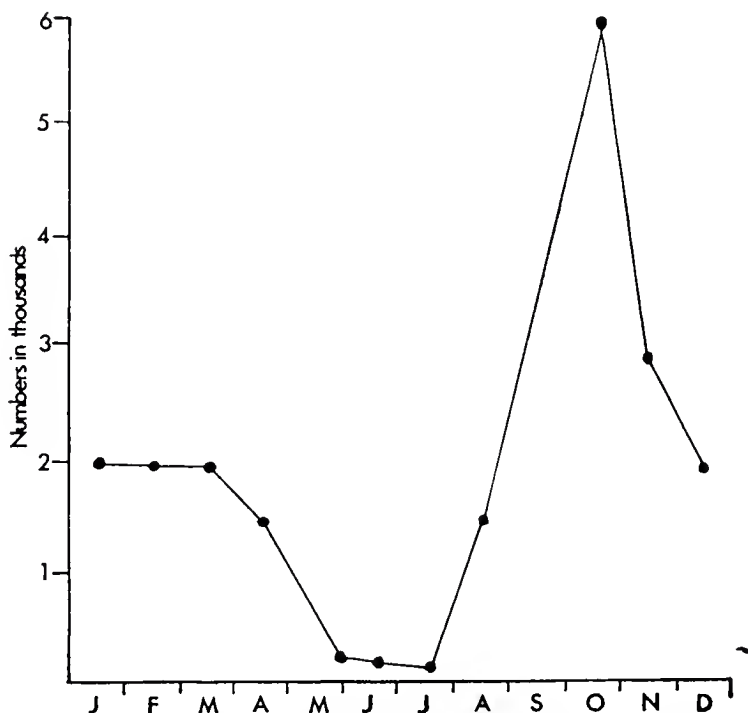


Fig. 4. Numbers of Oystercatchers *Haematopus ostralegus* at Foulness, Essex, throughout 1965

Dunlins *Calidris alpina* (fig. 3d) are one of the two commonest waders. They are present throughout the year, with the peak numbers in the winter and a maximum estimate of 10,000. This flock builds up in late summer and early autumn, but the largest concentrations are not until December. In general, Dunlins feed all over the flats, including those of the rivers and creeks. At high tide they congregate at roosts and can form impressive flocks of 2,000 to 4,000 at the Point or Havengore Head, but they occur more usually at other times in parties of 50 to 200. Similar parties are also frequently found on the pools of Havengore and along the dykes of the Crouch, often remaining some hours after high tide. Occasionally large numbers overfly the islands and roost on Wallasea Island to the west. Flocks of up to a few hundred are still present in late spring, but by early June only small parties of late migrants remain. The return migration begins in July.

Sanderlings *C. alba* (fig. 3e) are largely confined to the extensive eastern mud-flats. Accurate data on the total population in the winter are not available, but they occur then in small parties of up to 50. More remarkable, a flock of up to 400 is a regular feature in the summer. These roost at high tide on the largest shell bank and feed along the

tide-line as the water falls. At times Sanderlings mix with Dunlins.

The most abundant waders of all are Knots (fig. 3f), the maximum winter numbers probably reaching 15,000 over the whole area. These sometimes congregate into one huge flock, but are generally found in groups of a few hundred to 2,000. Although they may come on to the land when the tides are really high, they show much less tendency than the Dunlins to do so. Similarly, relatively few penetrate far up the Crouch. Numbers rapidly decline in the spring, of course, but a notable feature in some years, comparable to the Sanderlings, is the presence of a flock of about 400 in mid-summer. The return passage begins in August and often the maxima are recorded in October.

Redshanks *Tringa totanus*, Ringed Plovers *Charadrius hiaticula*, Turnstones *Arenaria interpres* and Grey Plovers *Pluvialis squatarola* occur in small numbers throughout the year, with the maxima again in winter. The totals do not exceed 1,000 of each.

### Gulls

Gulls are the third large group of birds utilising the area of mud-flats and saltings. Little information on them had been collected until 1968, but an intensive enquiry was then launched, initially to estimate the main movements and later to identify the species involved. This work is only partly completed, but the broad outlines are now clear. The main species in summer, and the only one breeding, is the Black-headed Gull *Larus ridibundus*. Colonies are found on the saltings at Foulness Point, south of Asplin's Head and at Havengore Head; much of this area is below high tide level and consequently many nests are washed out. Black-headed Gulls had been suspected of breeding for several years when six nests were first discovered at Foulness Point in 1963 and numbers rose rapidly after that. The next nests were located at the other two sites, but in 1969 240 nests were again found at the Point and there were less than half a dozen elsewhere; this total is the highest ever recorded at Foulness. At Havengore the majority of the nests are concentrated around pools in the saltings, but at the other sites they are grouped on higher ground, apart from a few in the lower *Salicornia*. When the young hatch they remain on the saltings for the first week or so, but later venture on to the mud as the tide falls.

In late June other gulls start to assemble, particularly on the shell-banks and adjacent mud at Foulness Point. These are a mixture of adults and immatures of all the common British species. Numbers rise rapidly through July and early August (fig. 5)—initially they are mostly moulting adults—and reach a maximum in late August or early September. In 1969, when there was a prolonged period of easterly winds, the highest figure was only 35,000. In 1968, however, when the winds were westerly, the build-up continued to about

180,000 at a rather later date. The majority are Common Gulls *L. canus* and Black-headed Gulls, with about 20% Herring Gulls *L. argentatus*. There are under 1,000 Great Black-backed Gulls *L. marinus* and an unknown number of Lesser Black-backed Gulls *L. fuscus* pause on migration, some of these being of the nominate race from Scandinavia.

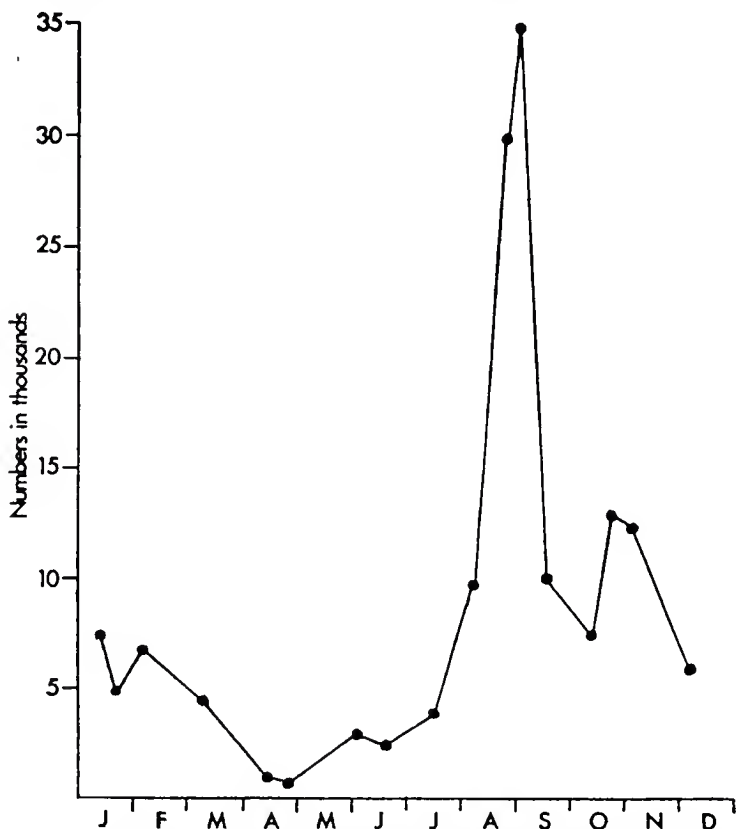


Fig. 5. Numbers of gulls *Larus spp* at Foulness, Essex, throughout 1969. The August-September peak was much lower than in 1968 when the build-up continued to 180,000 (see text)

The movements of these gulls are extremely complex, but in broad outline they fall into three groups: (1) those that feed on the flats and gather at high tide either above the high water mark or on the fields of Foulness; (2) those that feed on the fields of Foulness; and (3) those that feed further inland. All roost at night on the flats and some certainly seem to go on to the sea. A large proportion of the gulls fall into the first group and they are fairly uniformly distributed on the flats. As the tide rises, many of these pass inland to roost on the fields, especially those in which the stubble has just been burned, often landing while the smoke is still rising. This movement begins as soon as the tide has turned and continues with increasing intensity for about four hours almost to high tide. It mostly takes place on a broad front at variable heights up to 150 feet, but some of the gulls may follow the Crouch and then turn across the northern sea-wall to

land on the fields. The reverse movement occurs as the tide falls, again lasting for about the same time, although a major part is concentrated into 90 minutes soon after high tide. Some of the gulls do not take part in this movement, but remain on the sea or roost on the shell-banks and saltings, especially at Foulness Point. These birds tend to fly along the shore as the tide rises, and then assemble on the shell ridge extending south from the main bank towards Fisherman's Head leaving this area only when it is finally covered with water. There is a marked tendency for Great Black-backed Gulls to remain on the seaward side of the wall. As the tide turns, the reverse movement occurs and at this time Black-headed Gulls often fly erratically along the tide line. Other gulls move on to the island at dawn to feed on the coastal fields, especially those which have just been ploughed or where wheat has recently been harvested. Others still pass further inland to feed on the fields and garbage tips, but this movement seems to be less constant, being marked in 1968 when the population was high and almost non-existent in 1969 when there were many fewer gulls. A return movement to roost on the flats or sea is seen in the evening; if the tide is high at this time, these gulls are joined by others roosting on the fields of Foulness. The evening flights are thus very complex.

The numbers of gulls diminish rapidly in late September and the first half of October until only about 7,500 remain. Their behaviour seems to be the same, except that there is relatively little movement inland. In spring attempts have been made to ascertain whether there is a return migration comparable to that in the autumn. In the two years studied, however, there was no evidence that this was the case; indeed, the numbers declined to their lowest level at this time and comprised mainly the Black-headed Gulls which later nested. Obviously much more work needs to be done in this field.

Rarer gulls occur occasionally, while small numbers of Common Terns *Sterna hirundo* and Arctic Terns *S. paradisaea* and a few Sandwich Terns *S. sandvicensis* pass through in autumn.

### (3) SHELL-BANKS

The shell-banks at Foulness Point comprise only a small fraction of the total area, but are of interest from both the geophysical and the ornithological viewpoints. They are formed by countless shells of Cockles *Cardium edule* swept up by the tide (plate 10b). The largest lies some 700 yards east of the saltings and is constantly moving towards them, having changed its shape from linear to semi-circular in the past ten years; it is now about 800 yards long and twelve feet high, and varies in width from ten to 25 yards (plate 10a). Another smaller and older bank is situated nearer the shore on the edge of the saltings, while several other low ones extend along the saltings to the south and west. There are also shell-lined bays along the Crouch.



This region forms important high tide roosts as already discussed, but its main interest lies in the breeding birds, of which the Little Terns *Sterna albifrons* are the most important. This species has declined throughout Britain and in 1967 the colony on Foulness comprised 6.4% of the total English breeding population (Norman and Saunders 1969). The numbers nesting on Foulness during 1954-69 are shown in fig. 6: the mean over these 16 years was 61 pairs, but with fluctuations between a minimum of 35 and a maximum of 95. In the early years of the period there were two main groups, one on each of the two largest banks. Following a variety of disturbances, however, the colony has dispersed partly on to some of the smaller banks, although the biggest group is still on the largest bank of all.

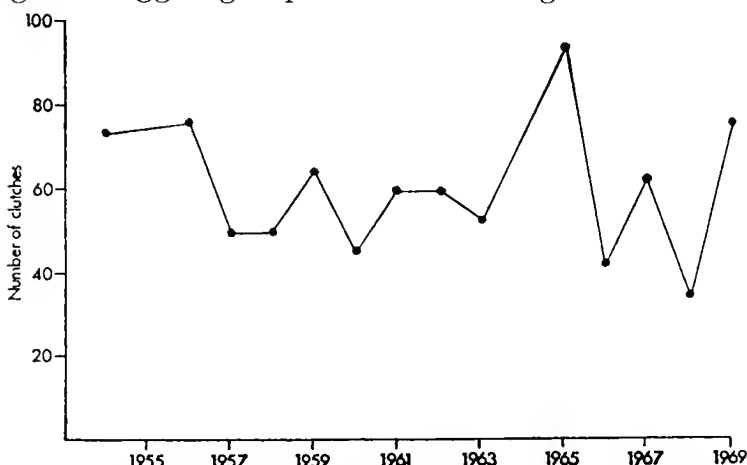


Fig. 6. Numbers of Little Terns *Sterna albifrons* breeding at Foulness, Essex, during 1954-69. There were no counts in 1955 and 1964, and only an incomplete one in 1968

The Little Terns arrive between mid-April and early May. Laying starts in the next two weeks and the majority of clutches are completed by the first week of June. In general, the birds prefer to nest on the shell packed by the winter tide, which is often unfortunately close to the high tide mark. Usually the main colony of 30 to 50 pairs is mostly (apart from isolated nests) in two or three distinct areas at the north end of the largest shell-bank and in recent years there have been relatively few clutches on the hard-packed and undisturbed south end. The next largest bank, on the edge of the saltings, has been less favoured recently and in 1969 there were no nests at all on it, although in the early 1960's up to 20 pairs bred there. The remainder of the terns are scattered in small groups of up to 15 pairs on the very small and low banks, usually on one or two of the north or south groups. The maximum numbers of young Little Terns are hatched in the third week of June. Breeding success is very variable and a combination of bad weather, human disturbance and high tides in the first week of July usually has serious consequences. The adults fish both in the sea

and in the dykes of the island, going inland especially when the weather is windy. The numbers around the banks diminish in late July and early August and there are virtually no unfledged young left by the end of July. At this time the gulls begin to congregate on the banks, but it is not known to what extent they affect the terns. The Little Terns disperse over the flats and rivers in August and frequently fish along the Crouch and the Roach until late September, some stragglers remaining until October.

Common Terns nest occasionally, both with the gulls and on the banks, and in 1969 Sandwich Terns bred for the first time on one of the smaller shell-banks, having previously been proved only once to nest in Essex (Hudson and Pyman 1968).

#### (4) AREAS INLAND

The regions within the sea-wall are of much less interest from an ornithological viewpoint. About 40% of the land—mostly on the eastern and northern parts of Foulness, but also on a considerable area of Havengore—is intensively cultivated, chiefly for cereal crops. A similar area comprises rough grassland on which cattle graze, while most of the remainder contains military installations surrounded by such grassland. There are numerous dykes and flashes of water adjacent to the sea-wall and intersecting the islands, particularly at Havengore and along the Crouch. Trees and bushes are scarce and confined to three small coppices and some hedgerows near to the scattered farms. Two villages, both on Foulness, house the majority of the 300 islanders.

Apart from the usual passerines expected in such habitats, there is also a regular wintering flock of Lapland Buntings *Calcarius lapponicus*. This species occurs in the largest numbers in the autumn, but a few stay through the winter and there is a small return passage in the spring. When first recorded in 1957, they were confined to an area of rough, close-cropped grassland at Crouch Cottage, and a series of accurate counts made at that time is shown in fig. 7. Since then the numbers recorded have decreased, but this may be an artificial decline as these birds now tend to frequent a restricted military area nearer to Foulness Point. Snow Buntings *Plectrophenax nivalis* often accompany them, but are also found more widely and in greater numbers.

Another species of particular interest is the Short-eared Owl *Asio flammeus*, which breeds in the rough grassland and in only one other regular site in Essex. First known to have nested on Foulness in 1954, there are now three pairs there each year. During the winter larger numbers of Short-eared Owls are seen, often in small parties.

The fleets and dykes harbour considerable numbers of breeding Mallard *Anas platyrhynchos* and Shelducks *Tadorna tadorna*, as well as Ringed Plovers, while Lapwings and Redshanks nest more widely.

These ducks and waders are joined by others in the late summer, autumn and winter, and they then utilise these areas as high tide roosting and feeding sites. The Golden Plovers are the only waders that do not frequent the foreshore, but spend all their time on the arable land: up to 2,000 occur in the spring and smaller numbers throughout the winter. Occasional parties of grey geese are also found on these fields in the winter, while Lapwings feed extensively over the whole area. Common passerines are present everywhere, but the shortage of trees restricts the number of nesting species. Passerine migrations follow the usual east coast pattern, although this part of Essex is to some extent 'over-shadowed' by the bulge of East Anglia.

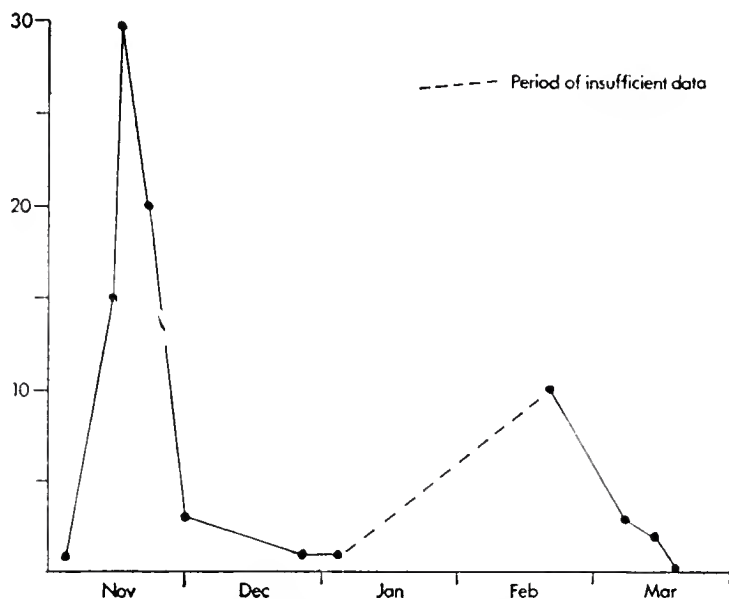


Fig. 7. Numbers of Lapland Buntings *Calcarinus lapponicus* at Foulness, Essex, during the winter 1958/59

#### CONCLUSIONS

This brief review of Foulness and the Maplin Sands describes the main habitats and the associated avifauna of each. The unique nature of the entire area cannot be too strongly emphasised. It comprises the last extensive example of a coastal ecosystem that was once widespread around the muddier shores of British estuaries, with the cord-grass *Spartina maritima* growing along the fringes of the saltings and the eel-grass *Zostera noltii* along the inner edges of the surrounding mud. To the seaward side are some of the largest sand-flats in Britain containing astronomical numbers of invertebrates on which many thousands of resident and migrant birds can feed. In other parts of the country this association has been obliterated by reclamation and by the spread of the new vigorous hybrid cord-grass *S. townsendii*. In many parts of Europe even the sand-flats have been reclaimed and

there are schemes which will affect many of those that remain both in Britain and abroad. It is this vanishing complex of habitats that attracts various species of birds to Foulness in such numbers and makes the region so important a part of the European scene.

The Brent Geese utilise Foulness as their main winter quarters in Britain because it includes the largest *Zostera* beds in Europe. There is abundant evidence (see, for instance, Ogilvie and Matthews 1969) that food supply is the factor limiting the world population of the Dark-bellied Brent Goose and that this supply is diminishing as a result of the many reclamation schemes in north-west Europe; attempts to introduce and cultivate *Zostera* in new areas have all failed. The only other site in the world where this Dark-bellied race is found in comparable numbers is the Gulf of Morbihan, in north-west France (Maheo 1969), and the coastline there is already facing reclamation proposals. Foulness is thus extremely important to the continued survival of the Dark-bellied Brent Goose.

Another bird whose status is insecure is the Little Tern. It has seriously declined as a breeding species in Britain as a whole, but it utilises the shell-banks at Foulness Point for one of its main breeding colonies. Again the threat of destruction to some of the other colonies in Britain, especially the largest on the Chesil Bank in Dorset, emphasises the importance of this one, which in 1967 contained 6.4% of all the English breeding pairs.

Apart from these two birds in whose survival Foulness plays a particular part, the Maplin Sands form an important resting place for migrant waders and gulls passing southwards in autumn from more northerly breeding grounds. The majority do not remain for more than a few weeks, but many thousands of other waders and considerable numbers of wildfowl are found there throughout the winter months. With increasing reclamation of north European coastlines, it is clear that the area around the mouth of the Thames, the largest estuary in Britain, must play an increasingly important role.

There seems little doubt that the next few years will see ever-increasing pressure on the remaining wetlands of Europe by the requirements of our industrialised society. Technology has reached the stage when it is both feasible and economically viable to reclaim virtually any area of shallow water. As the human population continues to rise, such schemes will become more and more attractive, especially as reclaimed areas are often particularly fertile and so able to supply the extra needs of countries desperately short of land for food production. But hand in hand with these requirements goes the growing need for recreational facilities, among which are man's interest in visiting places representative of natural habitats. There are already a number of national parks and nature reserves in southern England, but more are essential, particularly to conserve a sample of the wetland



habitats which are fast vanishing and which are not adequately represented in existing reserves. The region of the Thames Estuary could well serve such a function as it still has in its lowermost reaches a section of foreshore representative of a complex of habitats that, with their associated unique avifauna, have long since disappeared elsewhere. The Maplin Sands and the adjacent land could well be improved by the construction of further fleets, the control of *Spartina townsendii* and the building of permanent hides to provide a first-class and badly needed wetland reserve. Time is desperately short, however.

#### ACKNOWLEDGEMENTS

I am greatly indebted to the Ministry of Defence, who have allowed regular access to the New Ranges on Foulness and the adjacent islands and have been most helpful in assisting ornithological work to be carried out over the area. I am also extremely grateful to the residents of Foulness, in particular the farmers, who have tolerated the presence of many field-workers over the past 15 years. My especial thanks are due too to all those who have assisted in the wildfowl counts, particularly Miss M. F. Drake who has organised these counts over the past nine years. Many others have contributed to our knowledge of the area, but especial mention should be made of the late Tony Shorter, who introduced me to Foulness and did so much of the original observation, and to Nicholas Picozzi and G. F. Felstead, without whose efforts many of the earlier data would not have been obtained. Finally, but not least, I am indebted to Dr W. R. P. Bourne for his help in collating all the information and for criticising earlier drafts of this paper.

#### SUMMARY

Foulness and the Maplin Sands have been preserved by the presence of the military authorities and now constitute one of the last remaining examples of a unique coastal ecosystem once widespread throughout north and west Europe. As such, the area forms the most important early winter refuge in the world for the Dark-bellied Brent Geese *Branta bernicla bernicla*, which feed there on the largest beds of the eel-grass *Zostera noltii* in Europe, as well as a very significant resting and feeding place for many thousands of the commoner waders and gulls. A relatively large colony of Little Terns *Sterna albifrons* at Foulness Point is also important as this species has seriously decreased in Britain as a whole, largely through disturbance. These and other birds are discussed in this paper, together with the implications of the threatened destruction of the entire region by airport and industrial development. It is argued that the area be considered for the creation of a major nature reserve.

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# Mediterranean Gulls nesting in Hampshire

J. H. Taverner

Plates 11-14

## INTRODUCTION

The following events took place in a colony of gulls and terns at the mouth of the Beaulieu River in Hampshire. This colony has been described elsewhere (Taverner 1965) and so all that need be repeated here is an outline of its main features. The centre is an island about half a mile long and over two hundred yards across at the widest point. It is composed of alluvium and completely covered with rice grass *Spartina townsendii*. In 1968 over 10,000 pairs of Black-headed Gulls *Larus ridibundus* were breeding there, as well as much smaller numbers of Common Terns *Sterna hirundo*, Sandwich Terns *S. sandvicensis* and Little Terns *S. albigrons*. These numbers are still increasing: in 1969 around 15,000 pairs of Black-headed Gulls nested. This increase is largely due to wardening, for the area has been a reserve since 1962 and is now subject to little human interference. The colony has been studied intensively since 1956, part of the work being an annual census of all breeding species, and the coverage has been such that the following can be considered a comprehensive account.

Throughout this paper, any Mediterranean Gull *Larus melanocephalus* with black on its primaries is called a second-summer bird and only those with all-white primaries are termed adults.

## THE 1966 SEASON

On 18th July 1966 E. J. Wiseman and N. D. Pullen saw an adult Mediterranean Gull over an area which I will call X on the western end of the island. It was not seen again that year.

## THE 1967 SEASON

On 23rd April 1967 Dr G. H. Fisher, S. Fisher and I saw an adult Mediterranean Gull near X. On my next visit, a week later, it was there again: it continually landed at one particular place and flew round my head calling as I approached. It gave every indication of being in territory and yet it was not seen again that year. Possibly it moved to another part of the colony and escaped notice, but in subsequent years I have found the species so easy to locate that I do not think this was the case.

## THE 1968 SEASON

On 30th March and 7th April 1968 I again found an adult at X, and on

14th April a Mediterranean Gull was clearly defending territory there. It drove off all Black-headed Gulls that came near and circled over my head, calling continuously, all the time that I was in the area. I think this was probably the second-summer bird that eventually nested at this spot, but I cannot remember examining the primaries on that occasion.

I next visited the colony on 21st April, with R. T. Baker, and we found three Mediterranean Gulls at X, two adults together and a second-summer bird. The adult pair did not show any signs of being in territory and were probably attracted to X by the presence of the second-summer bird. The number had increased to four by 28th April: the second-summer bird still defending its territory at X, the adult pair still together in the vicinity of X but not demonstrative, and a new second-summer bird easily recognisable by the colour of its soft parts. This last individual was not seen subsequently. It was on a shingle patch about twenty yards from X, but was not associated with the other second-summer bird.

Four Mediterranean Gulls were again present on 5th May. The adult pair had moved to a part of the gullery adjoining the mainland and, although they were not settled in one particular spot, they flew round my head calling in an agitated way as I walked over the area. The original second-summer bird was still vigorously defending its territory at X and a new individual, believed to be a hybrid Mediterranean  $\times$  Black-headed, had appeared at a place a hundred yards east of X, which I will call Y. This bird will be the subject of a separate paper.

During the next few days the part of the colony where the adult pair had been was swamped by high tides and on 12th May these two birds had moved to a place about 150 yards east of Y, which I will call Z: for the first time they seemed settled in a territory. On this day I was accompanied by G. H. F. and D. A. Thelwell and we found six Mediterranean Gulls (including the hybrid) on the island. The hybrid at Y had been joined by a new adult and these two seemed to be a pair in territory; the original second-summer bird was still defending X and, although not mixing with it, a first-summer individual was also present near-by.

The 19th May was the crucial date. G. H. F. and I had been observing and photographing the first- and second-summer birds at X from a hide and also watching the other four at Y and Z. We saw one of the adults at Z fly to the shore and return to its partner with a large piece of seaweed in its bill. It repeated this action a few minutes later and it seemed obvious that they were building a nest. (As it turned out, however, they must have had eggs at this point and were merely adding to the nest.) Meanwhile, we thought that one of the two at Y was sitting. We could see the adult there standing in the *Spartina* and the head of its hybrid partner low down by its side. G. H. F. walked up to this spot

and found a nest with three eggs, but, since Black-headed Gull nests were thick on the ground, we could not be certain that our bird had come from it. We erected a hide about 15 feet away and G. H. F. went in. The gulls returned immediately and he was able to photograph the hybrid landing and settling on the suspected nest. As we did not wish to disturb the colony any more that day, we told N. D. P. about the adults at Z; on 23rd May he visited the spot with J. Spedding and found that they also had a nest with three eggs. A few days later I watched and photographed this pair at Z from a hide about 20 feet away.

All six Mediterranean Gulls were still present at X, Y and Z on 26th May and 1st June, but by this time photographs of the second-summer bird had revealed a ring on its right leg. We thought it unwise to risk the disturbance involved in trapping it and so on 2nd June, when visiting the island again with G.H.F. and N.D.P., I went into a hide very close to X with a telescope that at  $\times 40$  would focus down to 15 feet. In this way, as the bird walked about its territory, I was able to piece together the letters and numbers on the ring as follows:

VOGELWARTE DDR  
HIDDENSEE IV IP  
5007703 GDR

Given this information, I. J. Ferguson-Lees wrote to Professor Dr H. Schildmacher, of Vogelwarte Hiddensee, who replied that the bird had been ringed as a chick by Dr S. Wagner on 7th June 1966 on Riems Island near Greifswald on the Baltic coast of East Germany. For some years single Mediterranean Gulls, sometimes apparently paired with Common Gulls *L. canus*, had been seen at various places on that coast and then a pair of Mediterranean Gulls reared two young at Riems in 1963, after which breeding became regular there or at any of three other localities: in 1966 seven pairs were known, but in 1967 only one.

The ring number was not the only discovery of 2nd June, however. This ringed second-summer bird at X settled in the *Spartina* as though it were brooding and presently a Black-headed Gull came and stood by its side. They remained like that for some ten minutes, the Black-headed occasionally bending down to rub the bill of the Mediterranean Gull. The Black-headed then walked around a little, but kept returning, and at last put its bill under the other's flank and, with gentle upward movements, persuaded it to stand up, whereupon the Black-headed shuffled forward and sat down in the same spot, clearly arranging eggs under itself. The Mediterranean Gull paced up and down by the sitting bird, the same beat that it had been patrolling since 14th April and, when G.H.F. and N.D.P. relieved me from the hide, I was able to guide them to the spot, where they found a nest with three eggs. Subsequently, we realised that a series of pictures taken at intervals



of a few seconds by G.H.F. on 19th May showed the Mediterranean Gull walking towards this spot as a Black-headed Gull rose to its feet and the Mediterranean Gull settling on the nest as its partner walked away. This explained the persistent defence of a territory since mid-April by this second-summer bird which, from its behaviour, must have been a male.

The Mediterranean Gulls at Y and Z were still sitting on 2nd June. We did not put up a hide at these nests, but at Z we could see the head of the brooding bird with its partner standing alongside and at Y the head of the sitting hybrid with its mate a few feet away.

On 7th June N.D.P. found that one of the eggs of the adult pair at Z was chipping, and two had hatched by the following day. On the 9th N.D.P. and I visited all three sites. The situation was unchanged at X and Z, the mixed pair at X still having three eggs and the adult pair at Z having two chicks and an unhatched egg. At Y, however, neither the adult Mediterranean Gull nor its hybrid partner could be seen: we erected a hide and I was surprised when a Black-headed Gull settled on the nest, but after some 20 minutes the adult Mediterranean Gull and the hybrid landed together a few feet away and the Black-headed flew off. The hybrid went to the nest and started sitting while the adult took up a position mid-way between it and another nest containing a single egg which, as had been the case on 19th May, a Black-headed Gull was incubating. This single egg, which was cracked and rotten, was almost exactly like those of the adult Mediterranean Gulls at Z, whereas the clutch of three at Y were more similar to the eggs of Black-headed Gulls. The single egg was also rather large, being in the Mediterranean Gull range, whereas the clutch of three were decidedly small and below average even for Black-headed Gulls' (based on the measurements in *The Handbook*).

On 16th June I settled in a hide at Y to clarify the position. The hybrid returned immediately, but stood a little apart from the nests. A few minutes later the adult Mediterranean Gull returned and the two went through a long greeting ceremony, after which they stood side by side. They seemed largely to have lost the desire to incubate, the eggs in both nests probably being more than 35 days old at the time. Eventually, however, the adult went to the single rotten egg and settled on it, while the hybrid came and stood by its side. They remained like this for some ten minutes and then, to confuse the issue still further, the hybrid sat on the nest with three eggs. No Black-headed Gull appeared to be connected with either, although I remained watching from the hide for a long time.

There seemed to be three possible explanations: (i) each could be paired with a Black-headed Gull; (ii) the hybrid could be paired with a Black-headed and the Mediterranean Gull be an unattached bird attracted by the closely similar hybrid; or (iii) they could be a pair, as

had been thought, but have become involved in a muddle over nest ownership. I feel certain that the last explanation was the correct one for several reasons: (a) up to 2nd June we had always seen the hybrid and the adult close together, the former usually sitting and the latter generally defending a territory; (b) the greeting ceremony on 16th June indicated that these two were paired; (c) the fact that they returned together and landed side by side on 9th June suggested that they had been away from the nest together; and (d) with the hybrid much closer in appearance to the Mediterranean, it seems unlikely that these two birds would pair separately with Black-headed Gulls and build nests within three feet of each other, especially as they arrived at the colony at more or less the same time and appeared, from their behaviour, to be a male and a female. It seems most probable that the single egg, being the size and colour of typical Mediterranean Gulls' eggs, was in the original nest of this pair. Possibly because the egg was badly cracked, they left it and took over a neighbouring nest either by driving off the owners or because it was deserted. (We know from our experience in 1969—see page 76—that a Mediterranean Gull is capable of forcing its way on to the nest of an incubating Black-headed Gull.) The Black-headed Gulls that sat briefly on the nests on 19th May and 9th June had possibly failed to breed, but still had the urge to incubate uncovered eggs.

On 16th June the mixed pair at X had at least two chicks that looked much like young Black-headed Gulls. G.H.F. did see the second-summer Mediterranean Gull brooding these young, but it generally left this task to its partner while it continued to keep off the surrounding Black-headed Gulls. The adult pair at Z had two nine-day-old chicks and one unhatched egg; I removed the latter and found no sign of an embryo in it. By 23rd June the pair at Y had stopped sitting, but were still together at the nest site; the chicks of the adult pair at Z were progressing well, but the second-summer bird at X was not seen. A week later, on 30th June, there was no sign of either bird at Y, but the second-summer bird was back at X and the pair at Z had two large chicks. On 7th July the hybrid was back at Y, but it ignored the nests; the second-summer bird at X was attending young, while the two chicks at Z were almost ready to fly. This was my last visit to the colony during the breeding season, but N.D.P. went there on 15th July and did not see any of the gulls. We presume that the young from X and Z flew safely. The Black-headed Gulls leave as soon as their young are flying and the Mediterranean Gulls evidently did the same.

To sum up, in 1968 breeding took place as follows: (a) a pair of adult Mediterranean Gulls raised two chicks; (b) a second-summer Mediterranean Gull, thought to be a male, paired with a Black-headed Gull and raised three chicks; (c) an adult Mediterranean Gull and a hybrid Mediterranean  $\times$  Black-headed bred, almost certainly as a pair, but

failed to hatch their egg or eggs. In addition, one second-summer and one first-summer Mediterranean Gull were seen in the colony, but did not stay.

#### NESTS, EGGS AND YOUNG

The adult Mediterranean Gulls at Z built their nest of *Spartina*, but it was bigger and bulkier than most Black-headed Gulls' nests and was decorated with seaweed which made it stand out from its neighbours. The nests at X and Y, also of *Spartina*, were indistinguishable from those of Black-headed Gulls.

The eggs of the adult pair were readily separable from those of Black-headed Gulls, being larger and relatively broader. They were very much like the paler eggs of Herring Gulls *L. argentatus*, both in colour and style of markings. The single egg at Y was very similar, but the clutch of three at Y and the eggs of the mixed pair at X were inseparable to my eye from the eggs of Black-headed Gulls. Measurements to the nearest 0.5 mm were: (a) site X, c/3: 51.5 × 36.0, 52.0 × 35.5, 51.0 × 35.0; (b) site Y, c/3: 51.0 × 36.5, 50.0 × 36.5, 50.5 × 35.0; (c) site Y, c/1: 55.0 × 39.0; (d) site Z, c/3: 55.0 × 39.0, 54.5 × 40.0, 52.5 × 39.0. We allow one man to collect the eggs of the Black-headed Gulls until the terns start taking up territories in the first week of May. The collector clears the island almost every day up to this time, but he kept clear of X where the second-summer Mediterranean Gull was in territory by mid-April. This collecting may have aided the breeding of the Mediterranean Gulls on the island since the nesting cycles of the two species were brought more into phase with each other.

Even at two days old, the chicks of the pair at Z were easily identifiable from young Black-headed by their heavy, downcurved bills; at all stages of their growth, we were able to pick them out by this feature alone (plate 14). Their down had the spiky appearance of young Sandwich Terns, but they were darker and more colourful, having some rufous patches amid the darker greys. As they became fledged, so they looked more like Black-headed Gull chicks, but they lacked the latter's brown wash and, even at ranges of 30 yards or so, were separable by their greyer colour. As they neared the flying stage, the extent of dark on the primaries became another point of difference. By the time they were four weeks old, they had developed white eye-patches like those of the adults but smaller (plate 14b). One of the chicks at Z reacted to our approach by burying itself in the vegetation, but the other always ran off and had to be rescued from soft mud on more than one occasion; otherwise, both stayed very close to the nest until they flew. The hybrid young at X were just like Black-headed Gull chicks at a week old, but they then left the nesting area and mingled with the young Black-headed Gulls when disturbed; as



PLATE 8. Dark-bellied Brent Geese *Branta h. hornula* feeding on eel grass *Zostera noltii* on the mud between Muplin Sands and the saltings of Foulness, Essex, with patches of cord grass *Spartina maritima* in front, November 1969. Nearly 350 are shown here, but the total at Foulness in November is 5 720-00, half the number wintering in England and a quarter of the world population (pages 52 and 49-66) (photo: Peter Kading)



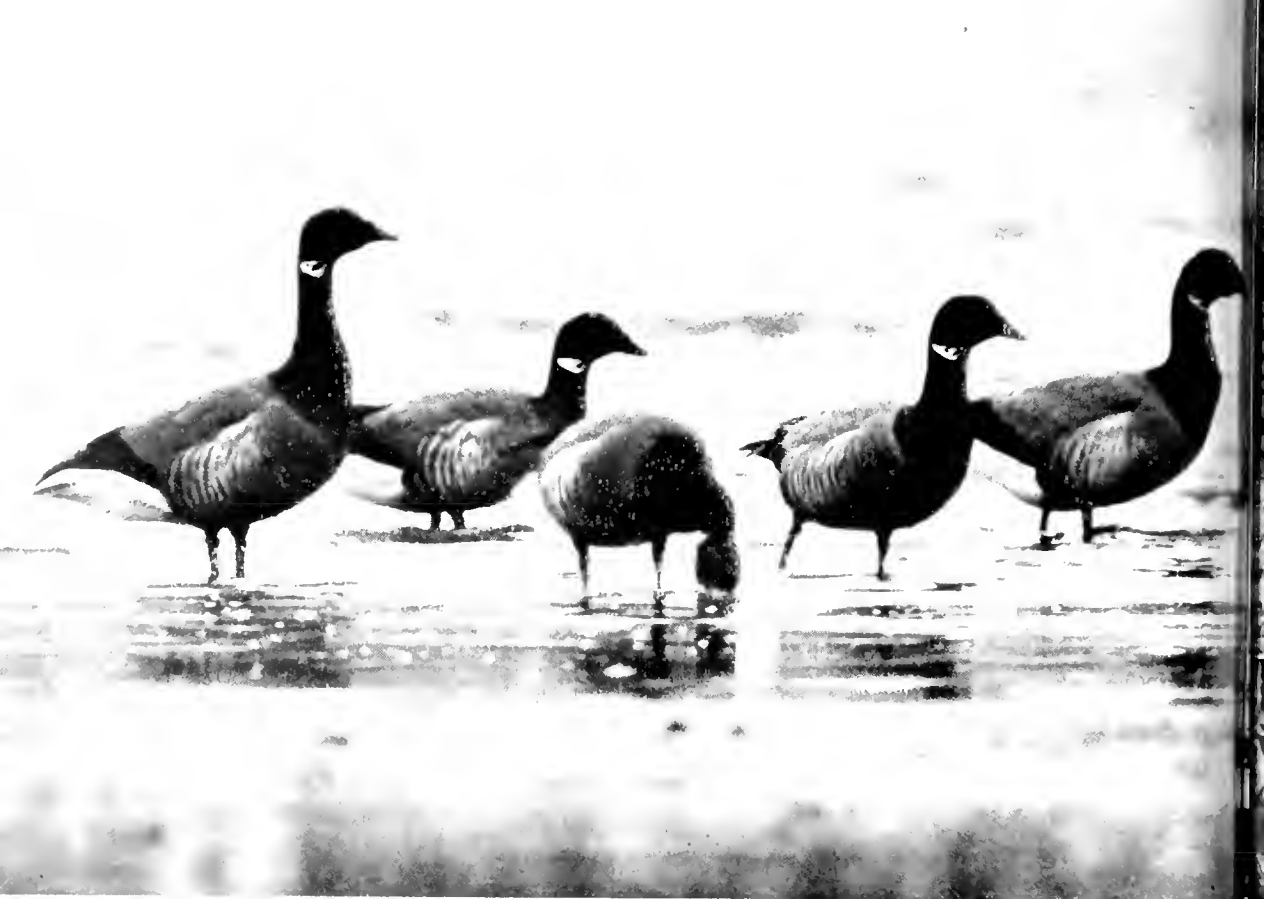


PLATE 9. Dark-bellied Brent Geese *Branta b. bernicla* at Leigh-on-Sea, Essex, about ten miles from Foulness, December 1969—one below with a piece of eel-grass *Zostera* in its bill. By late December the Foulness *Zostera* is becoming depleted and some of the geese move to other parts of the Essex coast (page 52) (photos: Pamela Harrison)

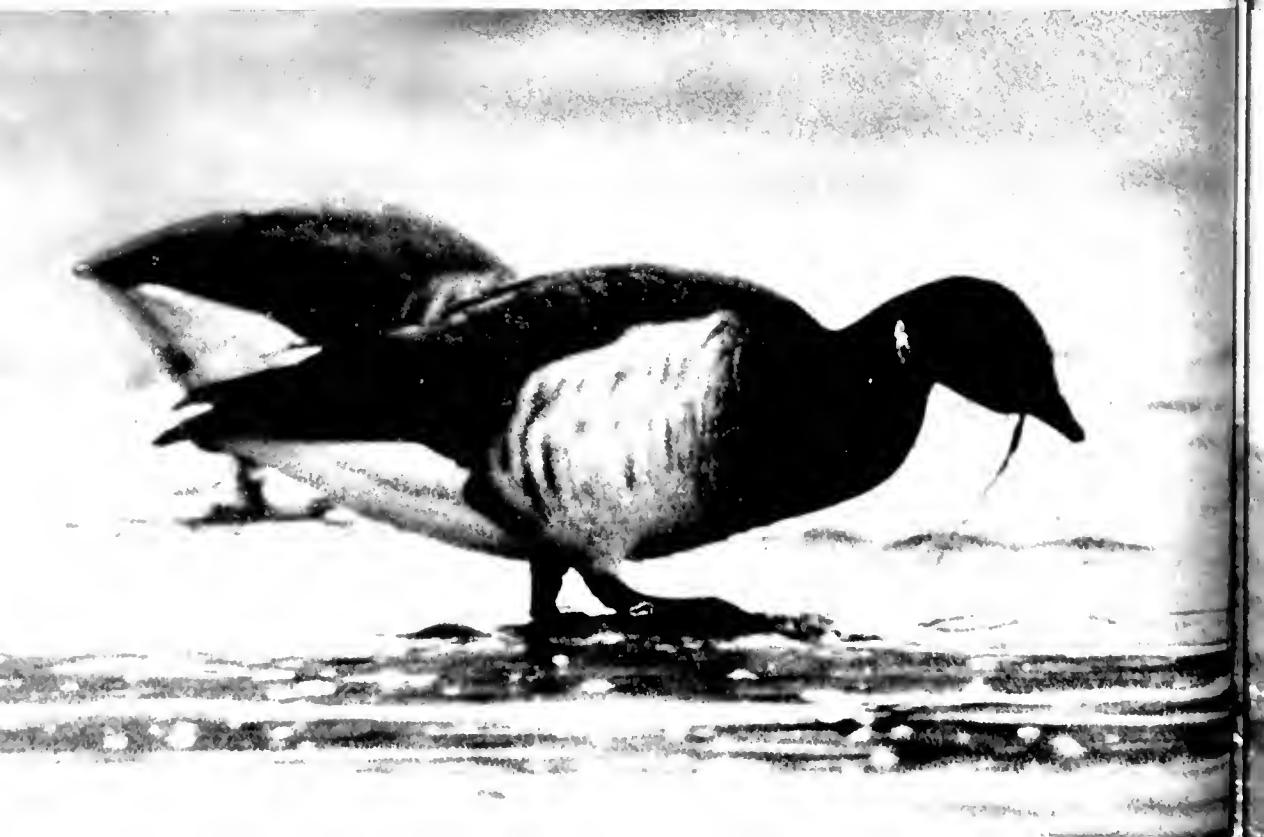




PLATE 10. Above, shell-bank at Foulness Point, Essex, formed by countless shells of Cockles *Cardium edule* swept up by the tide: 800 yards long and 10 to 25 yards wide; this one is the site of a large colony of Little Terns *Sterna albinus* (page 62). Below, looking over the saltings (page 51) to the shell-banks (photos: Peter Rudge).







PLATE II. Above, adult Mediterranean Gull *Larus melanocephalus* (unpaired) in territory, Hampshire, summer 1969 (pages 67-79). Below, bird presumed to be a hybrid Mediterranean-Black-headed Gull *L. ridibundus* (paired with adult Mediterranean), summer 1968 (page 68); to be the subject of a separate paper (*photos: G. H. Fisher*)





PLATE 12. Above, adult Mediterranean Gull (*Larus medialis*) one of true pair at nest and, below, with two young, Hampshire, summer 1968. (pages 68-72). Note the heavy bill, black hood, white eye-marks and white primaries, also the woolly head above (page 73) and, below, the neck stains from feeding young. (Photo by G. H. L. L. L.)







PLATE 13. Second-summer Mediterranean Gull *Larus melanocephalus* (paired with Black-headed *L. ridibundus*) in territory, Hampshire, summer 1968; this mixed pair raised three young (pages 68-72). Head and neck shape are shown well (page 73); this bird had less black on its wings than did the hybrid (*cf.* plate 11) (*photos: G. H. Fisher*)





VII 14. Close-up of the young Mediterranean Gulls *Larus melanocephalus* that the pair on plate 12 were successful in rearing at Redoubt Point, Hampshire, in summer 1968. Above, at nine days old, showing the heavy bills and the spiky plumage. Right, at 23 days old, with a large bill and white downy ring already diagnostic. The colour of these chicks was markedly greyer than young Black-headed *L. ridibundus* (page 10). (photos: G. H. Fisher)



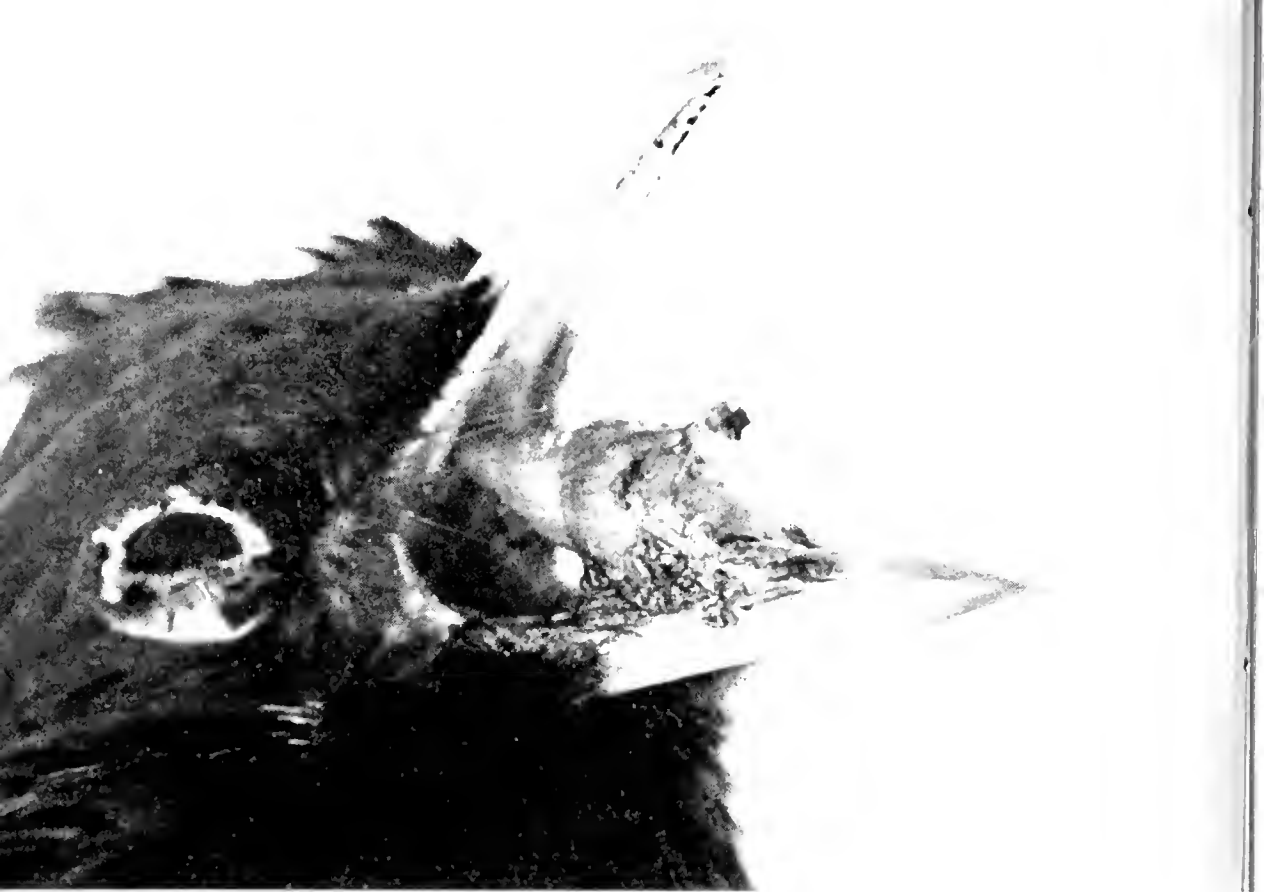


PLATE 15. Above, dead male Blackbird *Turdus merula* with fresh-water snail *Lymnaea stagnalis* caught behind its tongue and driven up into its palate, Norfolk, January 1970 (pages 84-85) (photo: M. D. England). Below, mites like rice grains underneath skin of knee joint of Shag *Phalacrocorax aristotelis* (pages 80-81) (photo: C. R. Hood)





they were not ringed, we were never sure after that whether we were handling them or young Black-headed Gulls.

#### ADULTS, SECOND-SUMMER AND FIRST-SUMMER BIRDS

Both on the ground and in the air, the 'jizz' of the Mediterranean Gulls was quite unlike that of the Black-headed. The difference in head shape was particularly marked: whereas Black-headed Gulls show one uniform curve from the forehead to the nape, the Mediterranean Gulls had distinctly bigger and usually squarer and flatter heads with a sharper curve at the forehead and behind the crown (plates 13a and b), though at times the crown feathers were slightly raised to give the head a rather woolly appearance (plate 12a). When one of them was worried or excited, it would stand with neck stretched and thicker at the base of the hood, giving a characteristic swollen appearance (plate 13a). The hoods were jet black in all lights, relieved only by the conspicuous white eye-patches and, inside these, the thin scarlet orbital ring. When the gulls were standing in the colony with only their upper-parts showing over the *Spartina*, this head pattern was so striking that they could easily be picked out at 70 yards or more in a very rapid traverse with binoculars. The bulk of the head and neck was intensified by the huge bill, not only twice as thick as that of a Black-headed Gull, but longer and markedly downcurved at the tip with a pronounced gonys (plate 12a). The bills of adults and second-summer birds were all a brilliant vermilion, but details differed so much that they could be recognised as individuals. All save one had a dark, vertical band towards the tip of the bill, but varying in extent and depth of colour; beyond this dark band, the bill tip of one adult was bright yellow and those of two other birds were yellowish, while the remainder had the tip the same colour as the rest of the bill.

Various postures frequently observed were also diagnostic. When threatening an intruding gull, a territory holder would advance with breast pushed out, neck extended but inclined back over the mantle, and bill pointing downwards and almost lying along the front of the neck. When displaying to its partner, on the other hand, the bird would shuffle forward with wings slightly drooped and held a little away from the body, and neck extended and swollen. Calls from the ground were typically delivered with three movements: (i) the bird would start the call reaching forward and slightly downward with out-stretched neck; (ii) it would then bring its head straight up with bill held almost vertically upwards so that it was standing in a normal position but with neck stretched; and (iii) it would complete the call by moving its head sharply forward with neck still extended and inclined at about 45°.

The Mediterranean Gulls were surprisingly easy to pick out in the air among several hundred Black-headed Gulls. The moment one



uttered its distinctive call, it could be heard above the noise of the colony at a hundred yards. Phonetically I rendered this as *wah-oo*, *kee-oo*, *kee-ow* or *kee-ah*. It was not at all harsh, but rather quiet, and I was surprised that it could be heard so readily. It varied a little according to the bird's excitement, but was always disyllabic with more emphasis on the first syllable and with the second falling in pitch. It was used in flight and on the ground by both second- and first-summer birds as well as adults. All were very vocal, especially in the early part of the season, flying round an intruder and calling constantly. They also called a great deal when standing in their territories, even after they had attracted a mate and had eggs. The only other note I heard was a quiet yelp, not unlike that of a Herring Gull.

The first-summer bird looked rather pale in flight. Its under-parts were mainly white, as was its back and head, the latter relieved by a large dark smudge behind the eye and a smaller smudge in front; there were also flecks of darker colour on its back. Its tail had a broad, dark terminal band and this and the primaries were the darkest parts of its plumage. Its wing-coverts were beginning to take on the blue-grey of those of the older birds, but a certain amount of juvenile plumage remained to give the coverts a freckled appearance. At close range, its bill was a yellowish-horn with the distal third black; its legs were the same horn colour.

All the Mediterranean Gulls mingled freely with the Black-headed. Each species was clearly dominant on its territory, but, although they co-existed peacefully for most of the time, on some occasions the Black-headed Gulls seemed to resent the presence of the others. On 5th May, before they had settled in territory, the adult pair of Mediterranean Gulls were repeatedly driven from place to place. Also, those sitting at Y and Z were occasionally worried by Black-headed Gulls swooping low over their heads, but these attacks were never pressed home and I never saw a Mediterranean Gull molested in the air. The most aggressive Mediterranean Gull was the second-summer bird at X: this individual defended its territory more fiercely than any of the Black-headed Gulls. It would not, however, attack a human intruder in the way that Black-headed Gulls will do; indeed I never saw a Mediterranean Gull come within 20 feet of me or anybody else, except of course when any of us was in a hide, although they were often the first to fly out and circle overhead.

#### THE 1969 SEASON

In 1969 I first visited the colony on 16th March with G.H.F. An adult Mediterranean Gull was back at X looking very much as though in territory. It circled our boat, taking bread that we threw into the water. Its hood was not quite complete then, but was fully developed by 23rd March. On the latter occasion I was accompanied by David Lea and

G.H.F. and we could see a ring on this bird's leg. It was almost certainly the ringed bird that had nested at the same site in 1968, when in second-summer plumage. Two Mediterranean Gulls were present on 30th March, the adult still at X and a second-summer bird a few yards away. The black flecking on the latter's primaries appeared identical to that of the ringed one in 1968, but the newcomer was readily recognisable by a bright yellow tip and a very dark vertical band on its bill. Although the two were only a few yards apart, they did not associate. Both appeared to be males from the way in which they were fiercely defending territories, calling a great deal and driving off most Black-headed Gulls that came near, yet making overtures to others, presumably females. We thought that the second-summer bird might be the individual that had frequented this spot in 1968, when in first-summer plumage.

Four Mediterranean Gulls were on the island on 6th April. The ringed adult at X seemed to have formed an association with a Black-headed Gull, for it drove all save this one from its territory, but the second-summer bird was still apparently alone. The newcomers, an adult pair, were swimming and paddling close together in shallow water by the shore. All seemed set for a repeat of 1968's breeding, but this adult pair was not seen again despite thorough coverage of the whole gullery throughout the season.

The two presumed males at X were still defending territories on 13th and 20th April. On the former date a Mediterranean  $\times$  Black-headed hybrid was seen at Y, in the same area as the 1968 hybrid, with which it appeared to be identical. On 27th April G.H.F. saw the second-summer bird at X regurgitate food to a Black-headed Gull on four occasions, confirming our opinion that it was a male. The adult at X was still defending territory and, although it tolerated the presence of one Black-headed Gull for a while, no pair-bond had apparently been established. This was still the situation at X on 4th May, but the male hybrid at Y was then carrying nest material, regurgitating food and displaying to a Black-headed Gull with which it seemed to be paired. On the same date we saw a fourth bird, a full adult, fly over X and thence to an area adjoining the mainland east of the river. There we found it with a Black-headed Gull, the two eventually flying off high to the north.

During the following week N.D.P. regularly saw the hybrid at Y, and J.S. and he watched the two birds at X and the extra adult flying over the area to the east of the river. When I next visited the colony on 11th May, the two at X, still unpaired, were still defending their territories. The second-summer bird's territory, however, had unfortunately been chosen by the Sandwich Terns as the centre of their densely packed colony, which on 18th May comprised over 100 pairs. By the latter date the second-summer bird had left this area (together

with most of the Black-headed Gulls near-by), presumably because of competition with the terns, and it was not seen again.

The situation was now confused by the arrival of colour photographs, taken on 4th May, showing the adult at X with no ring on its leg. The ring had been seen on 23rd March and 6th April, and a single adult had been present at X on every visit since 16th March. The unringed bird was also evidently a male because on 18th May it was seen to regurgitate food to a Black-headed Gull. Either the original bird had lost its ring or a new adult had arrived, possibly attracted by the presence of the other, and the ringed one had left. A careful comparison of the close-up photographs revealed differences in bill markings and, in one case, white flecks on the hood. We feel certain that two individuals were involved, with a change-over on some date between 6th April and 4th May.

I was in the area again on 25th May, but did not go into the colony for fear of disturbing the Sandwich Terns. The adult at X could usually be picked out with ease from the mainland, but on this occasion he showed himself briefly and then disappeared into the vegetation, not reappearing for some four hours. The most likely explanation was that he was brooding and so on 1st June we again erected a hide and G.H.F. and I spent two long periods inside. The unringed adult returned immediately and strode around his territory for about half-an-hour. Then for some 15 minutes he walked around close to a sitting Black-headed Gull which was much upset by his behaviour. It kept snapping and screaming at him as if trying to drive him from the vicinity. Finally, the Mediterranean Gull advanced determinedly on the sitting bird and pushed his way on to the eggs as the other rose. For the next 15 minutes the Black-headed walked around the nest, calling in an agitated way and making threatening passes at the sitting Mediterranean Gull. On several occasions, it rose into the air and swooped at the latter, coming within a few inches, but never making contact. The Mediterranean Gull seemed completely unmoved, however, making only the occasional jab at the other as it swooped low overhead. After a while, the Black-headed Gull gave up its attack and stood by the sitting bird. We do not know whether these two birds were actually paired, though we formed the impression that they were not. If the male Mediterranean Gull was in fact pushing a Black-headed Gull off a nest with which he had no connection, it would help to explain the happenings at Y in 1968 (page 70). The hybrid at Y was sitting tightly on this date and, in contrast to the bird at X, seemed to be amicably paired with a Black-headed Gull.

During the following week the adult at X was not seen by J.S. or N.D.P. and I could not find it on 8th June. Indeed, on this date there seemed to be no Mediterranean Gulls in the colony and J.S. told me that he had not seen any during the previous week. Then on 15th

June I again located three birds. The hybrid was sitting at his usual spot, an unringed adult was standing on the shingle close to X, and another unringed adult was again calling vigorously and walking round the territory there. This last bird showed no sign of being connected with any of the Black-headed Gulls, which confirmed my belief that he was not paired with the bird on whose eggs he had sat on 1st June. An adult was seen over the mainland on 20th June, finally flying to the island and landing at X. On 22nd June an unringed adult, presumed to be the same individual as before, was still at X, but his attraction to the spot seemed to be fading and he was making brief flights to the shore. On the 29th he was again bickering with the Black-headed Gulls, but failed to return after I erected a hide. This was the last date on which he was seen. I saw the hybrid again on my next two visits on 6th and 15th July, but there was no evidence of his having any young and it seemed that the nest had come to nothing. These were the final sightings for the year.

To sum up, in 1969 at least five and possibly seven Mediterranean Gulls had been seen as well as the hybrid; all but one were adults, five were almost certainly males and one of a pair was presumed to be a female. (1) A ringed adult (presumed male) had defended a territory at X from 16th March to at least 6th April, making unsuccessful attempts to attract a Black-headed mate. (2) An unringed adult (presumed male) had defended a territory at X from at least 4th May to 29th June; he regurgitated food to a Black-headed Gull and at one time brooded a clutch of three of the latter species, but was believed not to be paired. (3) A second-summer bird (presumed male) had defended a territory at X from 30th March to 11th May and had regurgitated food to a Black-headed Gull. (4) An adult pair (presumed male and female) had been present on 6th April. (5) A hybrid (presumed male) paired with a Black-headed Gull; he was seen to brood eggs, but it is not known if these hatched. (6) Single adults were seen on several occasions over the colony, while the known adults were visible on the ground; it is possible that they were one or other of the adult pair that had been seen on 6th April, but it is considered more likely that two extra birds were involved.

#### DISCUSSION

##### *Preponderance of males and ease of mating with Black-headed Gulls*

The preponderance of males has been unfortunate, since it has resulted in their attempting to pair with Black-headed Gulls. Harris (1969) showed that male Herring and Lesser Black-backed Gulls *L. fuscus* conditioned to consider themselves as the other species were willing to mate with females of either. On the other hand, similarly conditioned females would pair only with males of the species that they considered themselves to be. Perhaps male gulls in general may be willing to mate



with females of a closely related species if their own kind is not available. Certainly the male Mediterranean Gulls made sustained and vigorous efforts to attract female Black-headed, but, with one exception, the latter resisted these overtures even though they would go so far as to accept regurgitated food. Their readiness to hybridise might explain the predominance of male Mediterranean Gulls, as passing females would perhaps be less likely to be attracted to a colony of another species. (Two of the known females arrived apparently paired with males and the third probably in the company of a hybrid partner). The only other explanations, neither very convincing, are that the predominance of males was due to chance or to their wandering further from their normal range than the females.

The readiness of the males to attempt to form hybrid pairs when outside their normal breeding range also suggests that range extensions are likely to be of a temporary or casual nature. Apart from the Needs Oar birds, a Mediterranean Gull paired with a Black-headed in the Netherlands in 1935 (van IJzendoorn 1950) and those on the Baltic coast have sometimes apparently paired with Common Gulls (Professor Dr H. Schildmacher *in litt.* to I.J.F.-L.).

#### *Competition with Black-headed Gulls*

The Mediterranean Gulls seemed more than able to hold their own with the Black-headed Gulls. They drove them from their territories with ease and did not appear to be worried when Black-headed Gulls dived at their heads as they incubated or stood in territory. More remarkable was the fact that the male at X in 1969 was able to dislodge a Black-headed Gull from its nest and take over incubation, the rightful owner not being able to regain possession.

#### *Proportion of full adults*

Three of the six individuals in 1968 and four of the five in 1969 were full adults, and two other adults were possibly present in the latter year. This was not due to first- and second-summer birds being overlooked. Obviously, a breeding colony would be more likely to attract full adults and so the experience at Needs Oar cannot necessarily be considered as typical of the age structure of the species on the south coast. Dr J. T. R. Sharrock reports, however, that the 282 Mediterranean Gulls identified in Britain and Ireland during 1958-67 included 136 adults and only 54 immatures (the other 92 having been published in county and regional reports without age/plumage details).

#### *Possible link with Sandwich Terns*

Six of the seven Mediterranean Gulls (including the hybrid) in 1968 and most of those in 1969 frequented X when they arrived, doubtless because they were attracted there by the first one. Sandwich Terns

nested at X for the first time in 1968 and again in 1969, and the adult pair at Z nested next to the only other group of Sandwich Terns in 1969. Y was the only site where Mediterranean Gulls were not next to nesting Sandwich Terns. Perhaps this has no significance, but in their Black Sea colonies Mediterranean Gulls are said to tolerate no other species but Sandwich Terns near their nests (Bannerman 1962).

#### POSTSCRIPT

Until the end of the 1969 breeding season, security appeared to have been excellent and, to our knowledge, only a dozen people knew of the nesting of Mediterranean Gulls. Late in 1969, however, rumour became widespread that a rare species had nested at Needs Oar Point. The establishment of a permanent colony may depend on the continuance of the freedom from human interference that this area has enjoyed in recent years. The island and adjoining mainland are strictly private, with access only by permit, and even permit-holders are not allowed on the island. It is hoped that bird-watchers will keep away and give the gulls an opportunity of consolidating their foothold.

At least six Mediterranean Gulls have appeared in 1970 up to the time of going to press. Two adult males have defended territories, at least one other adult has been flying around, a first-year bird has been seen with an adult and the hybrid has paired with a Black-headed Gull. The most interesting development, however, has been the appearance of a two-year-old at the exact site where the adult pair nested in 1968. This bird (one of the chicks?) has held a territory for several weeks and it also appears to be a male.

#### SUMMARY

After brief appearances in 1966 and 1967, Mediterranean Gulls *Larus melanocephalus* nested on an island at Needs Oar Point, Hampshire, in 1968. An adult pair raised two young to the flying stage; an adult female paired with a hybrid Mediterranean  $\times$  Black-headed Gull *L. ridibundus* and laid eggs which failed to hatch; a second-summer male paired with a female Black-headed and raised three young; and two other birds were present for a short time. In 1969 at least five and probably seven individuals appeared as well as the hybrid, and three males took territories. Mediterranean Gulls were present throughout that season, but the only breeding involved the hybrid paired with a female Black-headed; no young were reared from this nest. The paper describes the events of the two seasons and discusses some of the points that arose.

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## Notes

**New species of subcutaneous mite in Shags and Cormorants** In the course of post-mortem examinations of Shags *Phalacrocorax aristotelis* and Cormorants *P. carbo* from the Farne Islands, Northumberland, we found many carcasses infested with a subcutaneous mite (*J. Anim. Ecol.*, 38: 53-102). A sample submitted to the British Museum (Natural History) was referred to Dr A. Fain, of the Institute of Tropical Medicine, Antwerp, Belgium, who described it as a new species *Neottialges evansi* (Family Hypodectidae) (*Bull. Inst. R. Sc. Nat. Belg.*, 43: 1-139). Adult females of this family lay eggs in the occupied nests of various bird species throughout the world. Small nymphs emerge and penetrate the tender skin of the nestling hosts. In the subcutaneous tissues, the nymphs grow to ten times their original size and when conditions are right emerge from the skin into the nest, where they complete their development into adults and repeat the cycle.

Of 23 Shags examined during 1963-67, 19 (83%) harboured subcutaneous mites. On the other hand, of 18 Shags which died suddenly from paralytic shellfish poisoning in May 1968 (*Brit. Birds*, 61: 381-404), only four (22%) were similarly infested. Although the difference is statistically significant ( $\chi^2 = 13$ ,  $p < 0.001$ ), the importance of this observation is not understood, the only difference between the two groups being the acute mortality in the poisoning cases contrasted with gradual debility and chronic loss of bodily condition in the others (probably associated with some protracted stress factor, such as insufficient food). We found no particular seasonal, sex or age factor correlated with the incidence of mites. One of three Cormorants showed a heavy infestation with a similar parasite.

The mode of penetration of the skin and subsequent departure from the subcutaneous tissue is not known. According to Dr Fain (*op. cit.*), the free-living mites are never found in empty nests but only in ones with eggs or nestlings. This ephemeral existence means that each year new parasite populations must be re-established by the emergence of the large nymphs from the parent birds, and it is thought that this synchronisation with the incubation and brooding periods is controlled by the bird's anterior pituitary hormone, prolactin. Just as penetration of the nestling's skin is facilitated by its delicate structure during the first few days of life, so emergence of the large nymphs is thought to be helped by the development in the parent birds of brood patches on the skin of the abdomen where it comes in contact with the eggs. Histologically, there is thinning of the horny layer of the skin with multiplication of the capillary blood vessels making a delicate spongy pad. This region is also the predilection site for

the subcutaneous mites which probably find the less dense tissues a suitable portal of escape to the outside world as the tissue levels of prolactin increase.

Dr Fain also reviewed the literature on the life history of this parasite, which was elucidated mainly by work on pigeons *Columba spp* which develop a well-defined brood patch. Such a skin modification is not found in Shags, which incubate their eggs on the dorsal surface of the foot webs, but it seems likely that the skin over the posterior part of the breast bone, anterior abdominal wall and inner aspect of the knee joints has a similar function in this species. Microscopic examination of the affected parts showed no evidence of tissue reaction around the mites, suggesting that the hosts are not greatly inconvenienced by the parasite *in situ* (plate 15b). Little is known of skin damage during the transcutaneous migration of the nymphs.

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**Moult migration of Bridgwater Bay Shelduck and migration routes from south-west and southern England** Most of the published work on the Shelduck *Tadorna tadorna* of Bridgwater Bay, Somerset, has concerned population size, moulting conditions and the time of arrival of the immigrants. Recent observations on the source and timing of immigrant birds have thrown some light on their origins, and other records from the coasts of Dorset and Hampshire indicate that Shelduck from south-west and southern England may migrate to the moulting grounds on the coast of Germany by different routes.

S. K. Eltringham and H. Boyd (*Wildfowl Trust Ann. Rep.*, 11: 107-117 and *Brit. Birds*, 56: 433-444) suggested that there are two main waves of Shelduck migrating into Bridgwater Bay. The first, arriving in July, consists of birds of passage going directly through the area to the moulting grounds on the German coast; these are joined by resident birds from the Bristol Channel. This theory is supported by evidence of a strong migratory movement to the north-east from the Bay at this time of year (J. V. Morley, *Brit. Birds*, 59: 141-147). The second wave, arriving in August-September, forms the assembly of moulting birds in the Bay.

Observations in south Devon by R. G. Adams and F. R. Smith (*in litt.*) over the last 20 years have shown that Shelduck normally leave the upper estuary of the River Exe between Topsham Ferry and Turf Lock in a north-easterly direction. The majority leave in late June and early July, the earliest being on 4th June 1950; August departures always comprise birds of the year, the latest being 16, all juveniles.



on 26th August 1953. To determine whether they were, in fact, flying to Bridgwater Bay, a number of observations were made from 1965 to 1968 between the areas. On 28th June 1965, near Burlescombe, Devon (near the Somerset border), two flights totalling 39 birds were seen, 18 at 20.43 GMT and 21 at 20.48 GMT. They were flying in the direction of Cothelstone, in the Quantock Hills, a course which would have taken them straight to Bridgwater Bay. At 20.15 GMT on 10th July 1967 a party of 13 left the River Exe near Topsham Ferry and flew north-north-east along the Clyst Valley, disappearing from view in the direction of Burlescombe. At 20.30 GMT on 8th July 1968 ten passed over the same area at Burlescombe, again heading towards the Quantocks and Bridgwater Bay.

These sightings, spread as they are over a period of time, strongly suggest that there is indeed an overland migration of Shelduck from the River Exe to Bridgwater Bay. From the departure dates given by Adams and Smith (4th June-26th August), it seems that Shelduck from the Exe Estuary may be using Bridgwater Bay for two quite different purposes. The early migrants from the Exe appear to be using the Bay as a brief staging post on their way to the German moulting grounds, whilst the later ones (particularly in August) may remain in the Bay.

There is some evidence to suggest that Shelduck from Dorset and Hampshire migrate eastwards along the south coast rather than via Bridgwater Bay. In Dorset, for example, 16 Shelduck flew eastwards out of Poole Harbour late in the evening of 27th August 1958 (*Proc. Dorset Nat. Hist. and Arch. Soc.*, 80: 36). Similarly, on 28th June 1964, W. G. Teagle (*in litt.*) observed five Shelduck over Studland Bay heading in an easterly direction for the Hampshire coast. Observations in Hampshire by J. H. Taverner (*in litt.*) indicate that the few departure flights that have been seen are in an easterly direction.

During their moult migration, therefore, Shelduck in south-west and southern England appear to divide into two distinct groups taking different courses: (a) those on the south coast east of about Lyme Bay migrate eastwards following the English Channel coast to reach the moulting grounds; and (b) those west of Lyme Bay migrate through the Bristol Channel via Bridgwater Bay overland to the Wash, and then across the southern North Sea. The distance from the Exe Estuary to the German moulting grounds is only slightly shorter by the overland route (565 miles) than by the English Channel coast one (580 miles). We are not suggesting, however, that this is a factor in favour of the selection of the overland route by the Exe Estuary birds. If this division of routes is confirmed by future observations, it is certainly worthy of further study.

We hope that this note serves to draw attention to the observations made to date. Our conclusion, albeit tenuous, that Shelduck from south-west and southern England migrate by different routes should

encourage the collection of further data. We are grateful to Dr D. A. Cadwalladr for his very useful suggestions on the preparation of this note, and to all the observers who kindly allowed access to their records.

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**Hooded Crows robbing Merlin of prey** On 11th September 1969, near Tolob, Dunrossness, Shetland, we watched an interesting skirmish involving a female Merlin *Falco columbarius* and two Hooded Crows *Corvus corone cornix*. We first noticed the Merlin on the ground at the edge of the Pool of Virkie, a shallow tidal inlet. Its behaviour suggested that it had recently made a kill, although we could not see the prey. The Hooded Crows were only a few yards away and apparently interested in the movements of the raptor. On our approach all three flew up and circled around. The crows continually harassed the Merlin, while it seemed anxious to return to the spot from which it had been disturbed. After a few minutes it succeeded and almost immediately flew up carrying a Starling *Sturnus vulgaris* which was still alive. At once the Hooded Crows intensified their attack, forcing the Merlin low over the water into which it dropped the feebly struggling Starling before making off. The crows then lost interest in the raptor, but at once landed in the shallow water, which was not more than two inches deep, and began to peck at the dying Starling. After a minute or so the Merlin returned to the place on the shore from which it had originally been disturbed, then flew low over the water towards the Starling, but was again driven away by the crows. The commotion attracted a group of about 20 gulls, chiefly Herring *Larus argentatus* and Great Black-backed *L. marinus*. One of the crows then attempted to bring the Starling ashore, flying for a few yards with the bird grasped in one foot, but dropped it back into the water when harried by a Great Black-backed Gull which, however, made no attempt to pick up the body. Eventually the Hooded Crows retrieved the Starling (now dead) from the water and began to feed. The Merlin did not reappear and the gulls dispersed. P. C. TINNING and P. A. TINNING  
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**Evident successful breeding of Bearded Tits in Anglesey** While fishing at a shallow lake in Anglesey on 5th August 1967 I was surprised to hear Bearded Tits *Panurus biarmicus* calling near-by in the surrounding reeds. (I have seen and heard the species on many previous occasions at Cley, Norfolk.) A female then repeatedly passed me carrying food and, by following her direction of flight, I located two young ones and watched her feeding them a number of times. The young, fortunately, were perched some three feet up in a rather open area of *Juncus effusus*. I visited the locality on four days during the

following week and on each occasion recorded at least three Bearded Tits. They were confined to a small part of a large acreage of *Phragmites communis* and *Juncus effusus* surrounding the lake. Their presence was sometimes revealed by their persistent scolding of a Common Tern *Sterna hirundo* when it happened to hover near them on one of its frequent visits to the lake.

During my visits I never managed to see the male, so I asked J. P. Wilkinson to verify my suspicion of successful breeding. Shortly afterwards I received a letter from him stating that at the same place on the 13th, in ideal weather conditions, he had had excellent views of a family party of Bearded Tits comprising an adult male and female and at least two juveniles. The latter were similar to the female, but more rufous, with darker upper-parts and shorter, broader, tails. He watched them for about 20 minutes, at ranges down to ten yards, seeing the female take food to the young; the male scolded him repeatedly. As far as I am aware, this is the first indication of Bearded Tits nesting on the island of Anglesey or, indeed, anywhere on the west coast of Britain.

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In addition, we understand from A. J. Mercer that D. L. Clugston and J. R. Mullins saw a pair of Bearded Tits at this locality on 29th April 1967 and three males on 5th July. Following the series of eruptions from East Anglia and the Netherlands, which began about 1960 and were documented in detail by H. E. Axell (*Brit. Birds*, 59: 513-543), Bearded Tits spread from Norfolk and Suffolk to become established in Essex and Kent; they also bred in at least one other eastern and two southern counties, but the above record indicates a more remarkable extension. We showed this note to Mr Axell, who agreed with us that repeated carrying of food by the female to the juveniles occurs only for a short while after the latter have left the nest and that such behaviour can be regarded as conclusive evidence of breeding in the immediate area. Finally, it should be added that, despite careful searches by several observers, no Bearded Tits were seen anywhere in Anglesey in 1968 or 1969. EDS

**Blackbird's death caused by snail** During a cold spell at the beginning of January 1970 a male Blackbird *Turdus merula* was found dead at Neatishead, Norfolk, with a fresh-water snail caught behind its tongue (see plate 15a). Apparently it had taken the snail (later identified as *Lymnaea stagnalis*) when food was short, and somehow managed to get it wedged behind the spurs of its tongue enabling the mollusc to attach itself firmly: in its efforts to free itself of the encumbrance the Blackbird had driven the point of the shell into its palate. The corpse was in such poor condition when brought to me

that I could not say whether the ultimate cause of death was starvation, shock or the penetration of the palate.

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**Spring roost of Blue-headed and Yellow Wagtails** Towards dusk on 18th April 1949 I was involved in the discovery of a mixed roost of about 40-50 Yellow Wagtails *Motacilla flava flavissima* and at least four Blue-headed Wagtails *M.f. flava* in a reed-bed at Fairfield Fleet, Walland Marsh, Kent, and the birds were present again on the following evening. A note on this roost was published by G. E. Manser and D. F. Owen (*Brit. Birds*, 42: 244). On the evening of 25th April 1968 I visited this locality for the first time at this season since 1949, and found that the same reed-bed was still being used by roosting Yellow and Blue-headed Wagtails, but on this occasion I identified at least 40 of the latter. They were the first to arrive at the roost; most of the Yellow Wagtails had been gathering in the neighbouring pasture to feed, not coming in until it was nearly dark. When I left, many more were still arriving while others stayed in the pasture.

I made a sound recording of the roost which has been added to the B.B.C. Sound Archives.

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**Bird predators at passerine roosts** With reference to the notes on predators preying at autumn and winter roosts (*Brit. Birds*, 61: 134, 526-528), during 1966-69 I frequently watched Hen Harriers *Circus cyaneus* hunting at moorland roosts near Stranraer, Wigtownshire. An area of willow scrub and rhododendrons is regularly used as a communal roost by about 100 birds, Greenfinches *Carduelis chloris* and Linnets *Acanthis cannabina* and smaller numbers of Pied Wagtails *Motacilla alba* and Reed Buntings *Emberiza schoeniclus*. The harriers would fly fairly low towards these thickets, abruptly hesitate in their flight and hover with lowered legs until a passerine was flushed, but they rarely attempted to capture their prey, which usually escaped by towering. On 13th March 1967, however, a 'ring-tail' harrier dived head first into a willow thicket after its quarry, looking at the time rather like a Sparrowhawk *Accipiter nisus*; it became entangled and extricated itself evidently with some difficulty. On 106 visits to this area, between autumn 1966 and the end of 1969, I saw up to three Hen Harriers together hunting over these bushes on 37 occasions, but only once, on 19th November 1966, did I actually see a kill (by a male).

Up to two Merlins *Falco columbarius* also used this moorland on their way to roost on another moor near-by. Although they often landed on fence posts, I saw them hunting at the passerine roosts only five times. Once, on 11th November 1967, a Merlin entered some willows and emerged clutching a small bird in its talons. On 25th December 1967



a Short-eared Owl *Asio flammeus* was seen chasing a Reed Bunting on its way to this roost.

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**Great Grey Shrike feeding at autumn roost** Several notes on birds of prey feeding at autumn roosts (*Brit. Birds*, 61: 134, 526-528) reminded us of some observations of our own involving a rather different predator. From 15th October 1966 to the end of that year we often saw a Great Grey Shrike *Lanius excubitor* near a roost of Linnets *Acanthis cannabina* among hawthorn *Crataegus monogyna* and blackthorn *Prunus spinosa* at Brigstock, Northamptonshire. The shrike was often in this area in the late afternoon as the Linnets flew in to roost, and on 28th October E.P. was fortunate enough to witness an actual kill. Later in the winter, on 27th March 1967, the fresh remains of a Blue Tit *Parus caeruleus* and a House Sparrow *Passer domesticus* were found impaled on blackthorn twigs near-by. The Great Grey Shrike's attendance on the Linnet roost seems more likely to have indicated the opportunist exploitation of a readily available food supply than casual predation by birds of prey.

E. PELL and N. L. HODSON

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## Reviews

**Book of British Birds.** Edited by R. S. R. Fitter. Drive Publications for the Reader's Digest Association and the Automobile Association, London, 1969. 472 pages, numerous illustrations (mostly in colour), diagrams and maps. 75s.

The combined publishing ventures of the Reader's Digest and the Automobile Association have already made their impact in other spheres. They have been characterised by high quality of production supported by a lavish advertising campaign. How far does this approach succeed with a scientific subject such as ornithology?

After a short, largely historical account of the factors responsible for the present status of birds in Britain, almost half the book is devoted to accounts of 216 of the commoner species, listed in a reasonably logical sequence under twelve habitat groupings. Seven of these species share a page with a closely-related one, but otherwise each has a full page to itself, including a large coloured illustration (usually striking and attractive in effect, but too often lacking in accurate detail to be really definitive) and a small black-and-white vignette (more modest, but more successful). For each species there are also two maps; one gives the British distribution, based on the recent work of J. L. F. Parslow already familiar to readers of *British Birds* (vols 60-61); the other shows the world distribution, taken direct from the maps in

Professor Dr K. H. Voous's *Atlas of European Birds* (1960). These maps are unfortunately on a rather small scale and the soft colouring used to show distribution and status does not always stand out very clearly—a point which seems to have occurred to someone during the printing, for a deeper colour has been used to better effect in three of the later world maps. The accompanying text is readable and generally reliable, although curiously short on details of identification—a gap which is only partially filled by a 20-page introductory chapter containing many small coloured illustrations (rather confusingly not all to the same scale) of the commoner species, principally grouped on a colour basis. In addition, 117 of the rarer species are illustrated in another series of small colour illustrations of very variable quality. Of this part of the book, one may say that serious ornithologists will value the distribution maps, but will probably feel that in all other respects this sort of thing has already been done better and in more compact form.

One has no such reservations about the second half of the book which deals with such subjects as evolution, moult, territory, life-cycle, display and the techniques of bird study. The profuse and imaginative use of illustrations and the authoritative writing (*pace* the memorable remark that the Woodcock 'can literally see out of the back of its head') combine to make this one of the best introductory works on bird-watching ever produced. The standard of production is absolutely first-class and the only misprints apparent to this reviewer were in the world distribution maps of the Goldfinch (back to front) and Gannet (no colouring at all).

DOUGAL G. ANDREW

**Catalogus Faunae Graeciae, Part II, Aves.** By W. Bauer, O. von Helvesen, M. Hodge and J. Martens, with assistance from W. Makatsch. Thessaloniki, 1969. 203 pages, 2 maps, English explanation of terms and place names. DM 17.50. Obtainable from W. Bauer, 6 Frankfurt am Main, Schneckenhofstrasse 35, West Germany.

The increase in knowledge of the birds of Greece during recent years has been remarkable. About 20 years ago, at the time of the preparation of *A Field Guide to the Birds of Britain and Europe* (1954), information on most of that country was virtually unobtainable. A great advance occurred with the publication in 1957 of Anthony Lambert's 'A specific check list of the birds of Greece' (*Ibis*, 99: 43-68). Now, however, the *Catalogus Faunae Graeciae* provides a more detailed and comprehensive guide to all that is known on status, distribution and relative numbers of birds in Greece than any available on even the birds of Britain. This reflects the increased attention given to Greece by foreign ornithologists rather than any growth of indigenous interest, and is a great tribute to the industry and high standards of the authors

(three Germans and an American) whose bibliography covers 14 pages, in addition to the list of 120 correspondents whose unpublished observations during the past two decades have augmented the authors' own extensive field work. A total of 380 species are admitted to the national list. The country, including the islands from Corfu to Crete almost to the Turkish mainland, is divided into eleven regions and, wherever it is possible and instructive to do so, information on distribution, season(s) of occurrence and abundance is given separately for each region under each species and subspecies. There is a map showing the areas of good, fair, poor and nil coverage by observers, which no-one visiting Greece should fail to consult if he wishes to make a contribution to her ornithology. With the exception of records confirmed by multiple observations or included in comprehensive works, all data given in the text are provided with references to sources.

The *Catalogus* is written mainly in German, but this is no severe obstacle to those unable to read that language, as great care has been taken to minimise the problem. In the systematic list the English name of each species is given in addition to the German one, and they are indexed separately. Furthermore, there is an English translation of the ten-page introduction, which lists in both languages (a) the main regions and place names given in the text; (b) the status terms used, i.e. breeding bird (distinguishing summer visitors from those occurring all through the year), passage migrant, and winter visitor, and also such modifiers as not proven, not definitely proven, and unconfirmed sight observation; (c) indications of relative abundance, i.e. accidental, very rare, rare, scarce, not uncommon, common, and abundant, and (d) such distributional notes as local concentrations, sparse, widespread, regular, local, irregular, sporadic, records lacking, and absent. Merely to read this list of vocabulary words shows something of the care, discrimination and evaluation which has evidently gone into the preparation of this work. It is sad to learn that the authors find that there has been terrifying impoverishment in the bird-life of Greece, especially since the 1939-45 war, and that 'numerous other species will not escape extinction' unless a start is made forthwith in the direction of conservation, beginning in the elementary schools.

Not only will research as detailed and thorough as this have saved scores of valuable observations from oblivion (as shown by the number of '*in litt.*' references which appear on every page) and assembled them into a coherent whole, but its stimulation and exposure of gaps in knowledge will unquestionably act as a launching pad for a further rapid advance in knowledge of the birds of Greece. The authors have set a pattern that could be followed by dedicated ornithologists elsewhere, to the great advantage of the ornithology of such areas as Morocco, Libya, Portugal and Jordan, where resident observers are few, but where visiting bird-watchers have done useful work in recent

years. Many records will become lost, like those of most war-time observations made by members of the services, unless similar steps are taken to assemble and preserve them. P. A. D. HOLLON

## ALSO RECEIVED

- Birds of Kerala*. By Sálím Ali. Oxford University Press, London, 1969. No price given.  
*Birds of the Early Explorers in the Northern Pacific*. By Theed Pearce. Theed Pearce, Comox, British Columbia, 1969. No price given.  
*Budgerigars*. By Cyril H. Rogers. Paul Hamlyn, London, 1969. 6s.  
*Flashing Wings*. By John K. Terres. Souvenir Press, London, 1969. 25s.  
*I Live with Birds*. By Roy Ivor. Souvenir Press, London, 1969. 37s. 6d.  
*Look*. Edited by Jeffery Boswall. B.B.C., London, 1969. 30s.  
*Pets for Children*. By Stephanie and Ken Denham. Paul Hamlyn, London, 1969. 6s.  
*The Book of Bird-Watching*. By R. M. Lockley. Arthur Barker, London, 1968. 25s.  
*The Hill of Summer*. By J. A. Baker. Collins, London, 1969. 29s.  
*The Practical Guide to Ornamental Waterfowl and Exotic Garden Birds*. By John and Phyllis Parker. Arcos, London, 1969. 42s.

## Letters

**The Hastings Rarities** I was interested in the recent revival of the controversy concerning the Hastings Rarities (*Brit. Birds*, 62: 364-381). In 1939 a friend of mine in the Anglo-Iranian Oil Company succeeded in getting for me some specimens of the geese that breed in the marshes in Khuzistan. Before the outbreak of war he had them killed, frozen, boxed and put in the cold storage of an oil-tanker, the *M.V. British Science*, sailing from Abadan. She arrived safely in the Mersey and docked at Stanlow on 11th October 1939. Through the influence of the same friend I was permitted to enter the guarded dock area and go aboard the ship the same day. The captain passed me on to the steward, a Mr. Parkman whose responsibility my birds had been. Mr. Parkman was an elderly man, and he showed very great interest and also knowledge. Presently he said, 'It was a lucky chance that your birds were put on this ship because I am the only man in the tanker fleet who has had experience of this sort of thing'. With few questions from me he told the following story.

He had worked at sea all his life, sailing chiefly to the Baltic, the Mediterranean and through the Suez Canal to the Persian Gulf. 'Before the first war', as a hobby and as a side-line, he had collected birds at ports of call and brought them back to England in the cold storage of his ships. I gathered that he had contacts at various ports who supplied him with both dead and live birds, that he shot some himself, and that he occasionally caught birds that alighted on the ship. He said that on arrival at a British port he always handed over the birds to his brother, who disposed of them 'at Hastings'. He



mentioned 'Bristow, 'the taxidermist' as the destination for the birds, and also mentioned 'a zoo down there'. He told with amusement of a 'big hawk' he had once brought alive from the Red Sea; it escaped, I think from the zoo, and caused a fuss in the district. He said that all this collecting had had to stop during the war, and that he had not started again thereafter. Hence his interest in my birds, and so the thread of chance that led to the answer to the Hastings riddle.

By 1947 H. F. Witherby had died and Sir Norman Kinnear was President of the British Ornithologists' Union. I was serving on the Committee of the B.O.U. at this time and told Sir Norman in private all about the matter, asking his advice as to where I should present the information. I stressed the point that the steward might still be alive and could be traced through the shipping company. He asked for time to consider and when he eventually gave me an answer it was that nothing should be said, not even to the Committee or to the List Committee. His view was that it would inevitably stir up a great deal of argument and bring distress to some people for little gain. Reluctantly I accepted the President's ruling, only telling a few close friends in confidence. Now that others have raised the matter and argument has had full sway I feel that Sir Norman's veto has lost its purpose, and that I am therefore free to relate these conversations. It must be borne in mind that at the time when Sir Norman made his decision the Hastings records had not been widely challenged, some of those who had been deceived would still have been living, and my information was vital evidence but needed proof. I think now his ruling was the right one.

ROBERT A. H. COOMBES

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With reference to the possible importation of the Hastings Rarities (*Brit. Birds*, 62: 364-381), Charles Waterton, in his book *Essays on Natural History* (1871), printed a letter to a George Ord, dated 15th April 1860, in which he reported that he had 'just received a fine goosander and two of your pinnated grouse' sent to him from Canada in ice: 'Positively they were as fresh as though they had only been killed the day before they reached Liverpool.' In 1932 J. D. D. La Touche, writing on the Chinese Partridge in his *A Handbook of the Birds of Eastern China* (Vol 2: 262), quoted W. Taczanowski's statement of 1876 on distribution and 'that it is brought to market in North China in immense numbers, and is probably exported to Europe in frozen condition via Siberia, together with other Manchurian game'.

I would suggest, therefore, that naturalists having access to the literature of their day would have found it easy to import dead birds in a frozen condition by existing legal means, without having to arrange transport in a clandestine manner.

J. J. HEATH

Natural History Museum, High Street, Colchester, Essex

**Field-characters and British status of Mediterranean Gulls**

It seems difficult to win with P. J. Grant. In February 1968 the Reverend G. W. H. Moule took him up over the appearance of the tail of young Mediterranean Gulls *Larus melanocephalus* and was put right through reference to museum skins (*Brit. Birds*, 61: 91-92). Then, when in March 1968 I independently queried with him the appearance of their wings, I was told what I had already pointed out, that I had referred to specimens (as if this was a point in his favour); that I was wrong about another species too; that I should have been discussing the appearance of the underwing in the field when it was the upperwing in Mr Grant's plate that I was taking exception to; and that I did not go out into the field enough (*Brit. Birds*, 61: 138-143). Possibly my field experience of 17 species of gulls in 21 countries is less vast than Mr Grant's, but all of us should be able to judge at least in the matter of Common Gulls *L. canus*, Herring Gulls *L. argentatus* and Kittiwakes *Rissa tridactyla*. How many young Common Gulls conform to Mr Grant's drawing (*Brit. Birds*, 60: plate 48) and how many Herring Gulls and Kittiwakes abrade their flight feathers so much that they lose the dark tips to the primaries entirely? I challenge Mr Grant to produce witnesses for the frequency of this last phenomenon.

Since there seems to be a general impression that my interest in gull wing-tips arose in museums, it may be useful to point out where it did begin. In the spring of 1949 great excitement was caused at Cambridge by the appearance at the sewage farm of a gull not described in any European handbook. By the time it was eventually identified, through reference to Dr J. Dwight's monograph on 'The Gulls of the World' (1925, *Bull. Amer. Mus. Nat. Hist.*, 50: 63-401), as a Silver Gull *L. novaehollandiae* from the London Zoo, everyone who had seen it had produced conflicting descriptions, drawings and identifications; in the general confusion the character which to my mind really clinched the identification at a distance was the pattern of its wing-tips in flight. It requires good eyesight and some practice to distinguish wing-tip patterns, but I would not have thought that they were so very difficult; when one is used to looking at wing-tips, my own experience is that they can often be seen a good deal further and sooner than many other diagnostic characters in common use, such as head-markings and the colours of soft parts. It is frequently quite easy to see that a particular gull is something unusual, but often more difficult actually to identify it; this requires the recognition of plumage details as well as its general character. It was Mr Grant's omission of some of these details, both in his description and especially in his drawing, that prompted me to take issue with him.

While on the subject of Mediterranean Gulls, it seems worth survey-

ing the British records accepted by the Rarities Committee during 1958-62 (after which the Committee ceased to deal with this species). Treating any individual which stayed in one place for some time as a single record dated when first reported, but any which reappeared in the same place after an absence as a new record, I have set out the totals over the five-year period in table 1. From this it appears that during 1958-62 Mediterranean Gulls were occurring regularly throughout the year at a rate of about 24 annually, but that there were three periods in the year when the new records reached a peak and when the birds were therefore presumably moving around, in July and August, in October and in April. The significance of these periods of redistribution is shown by considering the history of individuals which regularly appeared at the same places for up to ten years in succession. Two such birds arrived each year at Hartlepool, Co. Durham, and at the Naze, Essex, during the first period of redistribution, in July and August, when Mediterranean Gulls presumably disperse from their breeding grounds. Whereas the one at Hartlepool would normally stay put until the return migration in April, the one at the Naze (and the Hartlepool bird in one year) would disappear again during the second period of redistribution in October, when a third (or possibly the one from the Naze) would regularly appear for the first time at Lowestoft, Suffolk, to remain until April.

**Table 1. Mediterranean Gulls *Larus melanocephalus* in Britain, 1958-62**

	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Total
Immature	1	1	3	3	1	2	1	—	—	1	3	2	18
Sub-adult	1	—	2	2	2	1	—	—	1	1	1	—	11
Adult	1	14	23	9	17	4	4	2	5	4	4	2	89
	3	15	28	14	20	7	5	2	6	6	8	4	118

This sequence of events suggests to me that Mediterranean Gulls must often, but not always, undertake three migrations annually: a post-breeding dispersal to regular late-summer quarters where they probably complete the moult, though there seems to be little information on this yet, followed in some (but not all) cases by a late-autumn movement to regular winter quarters elsewhere before the return to the breeding grounds in the spring. It is not clear when they establish this cycle, but it seems likely to be in their first year, although, as pointed out by R. H. Charlwood and I. J. Ferguson-Lees (*Brit. Birds*, 57: 250-252), they are seldom identified here until they assume the distinctive adult plumage (perhaps because observers do not look at their wing-tips carefully enough?).

This pattern of movement sheds an interesting light on that which probably also occurs with our commoner gulls in such places as the Thames estuary, where a vast late-summer roost of moulting birds is

now known in the vicinity of Foulness and the Maplin Sands (see pages 49-66 in the paper by Dr P. Rudge). This roost decreases at about the time when gulls start to appear in large numbers further inland around London, although here it is impossible to trace the movement of individuals between their late-summer and winter quarters in the same way. In such cases records of rare birds may be of particular interest because their movements are so much easier to follow individually than those of commoner species.

Perhaps if Mediterranean Gulls continue to increase and are left in peace—and the same applies to Little Gulls *L. minutus*—they will take up summer territories too and start to breed with us.

W. R. P. BOURNE

*c/o The Thatched Cottage, London Road, Stockbridge, Hampshire*

We must apologise to Dr Bourne for the length of time that it has taken to publish this letter, an earlier version of which was originally submitted in April 1968 when, unknown to him, Mediterranean Gulls were establishing territories preparatory to breeding in England for the first time (see the paper by J. H. Taverner on pages 67-79). Thus we may now applaud the prophetic nature of his final paragraph. When this letter was written, too, Dr J. T. R. Sharrock was just completing the extraction of records of this and other species for his surveys of 'Scarce migrants in Britain and Ireland during 1958-67' (*Brit. Birds*, 61: 169-189; etc.). Dr Sharrock has not yet fully analysed the Mediterranean Gulls, but he has kindly told us that during 1958-67, including those for 1958-62 referred to by Dr Bourne, a total of 282 Mediterranean Gulls was identified, an average of just over 28 a year, and that of those whose age/plumage was published in county and regional reports, 136 were adults and 54 immatures (the remaining 92 simply being recorded without qualification). EDS

## News and comment *Robert Hudson*

**The search for avian influenza** Growing evidence suggests that the new strains of Influenza A, which affects mankind and various domestic animals at intervals with serious results, may originate among wild birds. The World Health Organisation has requested assistance in locating wild strains; anyone who encounters any unexplained epidemics among wild birds, including especially the young of sociable species such as seabirds, during the coming summer is asked to get in touch immediately with Mrs Muriel Rose at the School of Veterinary Medicine, Madingley Road, Cambridge (telephone during working hours: Cambridge 55641) so that arrangements may be made for urgent investigations. All reasonable expenses can be refunded.

**Planned 'Field Guide' of recordings** A gramophone record version of the *Field Guide to the Birds of Britain and Europe* is in preparation. The planned fourteen 12-inch LPs are nearing completion, and the first discs are expected to appear later



this year. Sveriges Radio are the publishers, and Sture Palmér and Jeffery Boswall the compilers. It is hoped that this set of discs will include the calls of most western Palearctic birds, but recordings are still being sought for 27 species: Baikal Teal, White-headed Duck, Levant Sparrowhawk, Pallid Harrier, Black Vulture, Andalusian Hemipode, Baillon's Crake, Houbara Bustard, Greater Sand Plover, Sociable Plover, White-rumped Sandpiper, Buff-breasted Sandpiper, Slender-billed Curlew, Pomarine Skua, Mediterranean Gull, Glaucous Gull, Ross's Gull, Ivory Gull, Pallas's Sandgrouse, White-winged Lark, Black Lark, Pechora Pipit, Yellow-browed Warbler, Eye-browed Thrush, Black-throated Thrush, Azure Tit and Rose-coloured Starling. Anyone who can provide tapes of any of these species is asked to contact Jeffery Boswall, Birdswell, Wraxall, Bristol BS19 1JZ.

**Personalities** We offer our congratulations to Professor V. C. Wynne-Edwards of Aberdeen University on his recent election as a Fellow of the Royal Society. This is one of the highest honours that can be bestowed upon a scientist, and Professor Wynne-Edwards now joins the small but distinguished band to be elected F.R.S. on the basis of zoological research.

Distinction of a more onerous nature has befallen Dr M. W. Holdgate, until lately Deputy Director (Research) of the Nature Conservancy. He has been appointed, with the rank of Under Secretary, to a new position as head of a government scientific unit co-ordinating pollution research. His unit forms part of the Cabinet Office, with direct access to the Secretary of State and to the Prime Minister. This appointment is a practical demonstration of Minister Anthony Crosland's concern over modern pollution problems; after Sir Solly Zuckerman, Martin Holdgate now has a more direct line to the top than any other biologist.

**Birds of the Royal Parks** In that vast area of pollution known as London, large open spaces are few, and the most notable of them are the Royal Parks. As a result of a long history of careful management and conservation, these Royal Parks retain some of the aspects of country parks, and possess varied avifaunas. Just how varied may be seen from the recently published report *Bird Life in the Royal Parks 1967-68* (H.M.S.O., 6s). During these two years 141 species were identified in the London Royal Parks; 72 are believed to have nested, 37 of them in the inner parks. Most striking, perhaps, was the nesting of Herons in Regent's Park for the first time in central London in living memory. Other notable breeding records included Swallow and Linnet in Regent's Park, Crossbill in Kew Gardens, Swift and Grey Wagtail in Bushy Park and Herring Gull in St James's Park; on the other hand, Stock Dove, Green and Great Spotted Woodpeckers, Kingfisher and Treecreepers have decreased and may no longer be resident in London's Royal Parks. Casual avian visitors included such improbables as Roller, Osprey, Iceland Gull and Guillemot. Inevitably, these *Bird Life in the Royal Parks* reports overlap with the *London Bird Reports*, but nevertheless they make interesting reading for those who, by choice or necessity, live or work in the Metropolis.

**Breeding bird surveys** Operation Seafarer, the ambitious seabird census being organised by the Seabird Group, is now in its final year of field-work. A number of gaps in coverage have still to be filled, mainly in western Ireland and among the Scottish islands, while it is hoped to recount as many as possible of the Irish Sea colonies in order to assess the magnitude of last autumn's seabird kill in this area (see 'News and comment' for October). Offers of help in this make-or-break year will be welcomed by the organiser: D. R. Saunders, Tom the Keeper's, Marloes, Haverfordwest, Pembrokeshire.

In the March issue of *B.T.O. News*, Dr J. T. R. Sharrock presented an interim report on the British Trust for Ornithology's Atlas project. Good progress has been made, and some noteworthy additions to our knowledge of breeding distri-

butions have been revealed. There are still many 10 km squares awaiting coverage, however, and Dr Sharrock (59 Curlew Crescent, Bedford) will be glad to provide details to volunteers.

**A South African research post** Concern for the well-being of South African seabird colonies has resulted in the founding of a three-year research fellowship, for which applications are now invited. This research, which will be directed towards the degree of Ph.D., will involve the monitoring of South African seabird numbers and reproductive rates, with special attention to the Jackass Penguin, and a study of the effects of oil pollution on the biology and conservation of the species involved. The salary will be R2,400 to R2,800 per year. Previous research experience is desirable, and excellent health is essential because of the rigorous field-work necessary. The successful candidate will be attached to the Percy FitzPatrick Institute of African Ornithology, University of Cape Town, Rondebosch, C.P., and applications should be sent to the Director to arrive there by 15th July.

**Last round in the Third London Airport enquiry** (I am indebted to Dr W. R. P. Bourne for the following notes.) For nearly a year since the Stage 2 local enquiries began, the Roskill Commission have been proceeding methodically with their task. The results of the Commission's special investigations and cost-benefit analyses have been rather disappointing. They start by baldly announcing that the 'evidence available indicates that bird-strikes will not be a serious hazard to life and limb since aircraft at present and in the future are able to withstand bird impact safely.' Bird-strike costs are then assessed at £2.3 millions over 30 years at an inland site, and three times as much at a coastal one. The Ministry of Agriculture (Infestation Control Laboratory) assesses the cost of bird control at £250,000 over 30 years at Heathrow, and four times as much at a coastal site.

Stage 5 hearings, at which the four proposed airport sites are compared, began in London on 6th April. In evidence, the Royal Society for the Protection of Birds, representing 13 naturalists' organisations, challenged the bird-strike figures; they considered them to be gross underestimates, especially in relation to present plans for the layout of a Foulness airport, in which sewage outfalls (highly attractive to birds) would be sited off the ends of runways. Much the same things were said by the airlines, B.E.A. and B.O.A.C., who stated that engine damage is the worst consequence of bird strikes, and that disturbance to operational schedules is serious as well. Dr G. W. Schaefer, on behalf of all the county councils concerned, repeated much of his earlier evidence at the Foulness enquiry ('News and comment', July 1969), but ended with an interesting change of attitude, admitting that birds do present a hazard. He suggested the use of a cheap marine radar to warn aircraft of their appearance and direct rescue vehicles in the event of a crash! In an appendix to their evidence, the R.S.P.B. stressed the importance (and probable uniqueness) of Foulness as an estuarine habitat; this aspect is elaborated by Dr Peter Rudge in his paper on 'The birds of Foulness' on pages 49-66 in this issue.

It will be six months before the final recommendation of the Roskill Commission is known. Meanwhile, bird-strikes continue to occur in various parts of the world. (On 1st December 1969 a Boeing 707 hit a flock of Silver Gulls *Larus novaehollandiae* while taking off from Sydney Airport, Australia: three engines were damaged and repairs cost a million dollars. A year previously a B.E.A. Viscount taking off from Wick, Caithness, hit a gull at 1,200 feet, shattering the windscreen; the pilot was hit by glass fragments but was able to return safely. Lloyds reported on 10th April 1970 that an International Airways Trident at high altitude over Pakistan hit a vulture which penetrated the screen, pierced the control board and injured the pilot; the aircraft lost height rapidly until the co-pilot was able to take over and make an emergency landing. So much for the belief that the rear-mounting of engines will eliminate the bird-strike hazard.

## Recent reports *P. F. Bonham*

### These are largely unchecked reports, not authenticated records

This summary is concerned mainly with the spring passage and arrivals of summer visitors during March 1970 and, unless otherwise stated, all dates refer to that month. Most of the vagrants, and the winter visitors still present or returning during March, were covered in the previous issue (*Brit. Birds*, 63: 44-48). Bitter northerly winds predominated almost throughout the period, reducing most of the early migrant arrivals to a mere trickle. Widespread blizzards during the first week, with snow lying over much of lowland England until the middle of the month, provided conditions more suitable for cold-weather movements than for spring migration.

Reports of **Garganey** *Anas querquedula* began with a drake at Esher (Surrey) on 3rd and a pair at Chetney (Kent) on 13th, but the first real influx into the south-east was not until 21st. Single **Spotted Crakes** *Porzana porzana* were found at Sevenoaks (Kent) on 17th and at Kenfig Pool (Glamorgan) next day. **Little Ringed Plovers** *Charadrius dubius* appeared at a number of localities north to Derbyshire and west to Somerset from 14th, and a **Kentish Plover** *C. alexandrinus* was seen at Frampton (Gloucestershire) on 27th. Despite the adverse weather, the first **Avocet** *Recurvirostra avosetta* at Minsmere (Suffolk) on 6th was the earliest ever there, though it was followed by only two or three more in the first half of the month. On the early morning of 13th, three Avocets stayed for 15 minutes on the Serpentine in Hyde Park (London) before flying off eastwards, and singles were seen at Breydon (Norfolk) on 15th, at Dungeness (Kent) and at Cley (Norfolk) on 22nd, and at Steart (Somerset) on 26th. By the end of the month, at least 125 had returned to Havergate Island (Suffolk). The only report of a **Stone Curlew** *Burhinus oedipnemus* was at Walberswick (Suffolk) on 29th. **Sandwich Terns** *Sterna sandvicensis* were first seen on 21st, but very few had appeared by the end of March.

A few **Swallows** *Hirundo rustica* were seen from 25th, and an early **House Martin** *Delichon urbica* was at Fetcham (Surrey) on 28th; **Sand Martins** *Riparia riparia*, first seen on 17th, were not present in any numbers until 26th-27th. Records of **Ring Ouzels** *Turdus torquatus* spanned the last week of March, up to ten being reported from various places as far north as Tyneside. Passage of **Wheatears** *Oenanthe oenanthe* reached minor peaks during 21st-23rd and 27th-29th, and a **Redstart** *Phoenicurus phoenicurus* appeared at Lade (Kent) on 28th and another at Sand Point (Somerset) next day. A **Sedge Warbler** *Acrocephalus schoenobaenus* at Winterset Reservoir (Yorkshire) on 29th was early, and a few **Willow Warblers** *Phylloscopus trochilus* were also found during that weekend, but these had been preceded by one at Narborough (Leicestershire) on 21st. Very few **Chiffchaffs** *P. collybita* were recorded before 21st, and an early one at Bristol on 8th had probably wintered. Eight **Tree Pipits** *Anthus trivialis* were seen at King George VI Reservoir (Middlesex) on 25th, and one was at Bodymoor Heath (Warwickshire) on 29th, while one or two **Yellow Wagtails** *Motacilla flava* appeared in Somerset, Devon and Kent on scattered dates from 15th.

As usual, **Black Redstarts** *Phoenicurus ochruros* and **Firecrests** *Regulus ignicapillus* enlivened an otherwise dull month at many places, but passage of both was poor with only single figures reported from any locality. Four **White Wagtails** *Motacilla alba alba* were identified on the Dartford Marshes (Kent) on 1st and up to three at various places north to Northumberland between 15th and 31st. A belated report of a female **Serín** *Serinus serinus* on 22nd February came from Benacre (Suffolk), and another rare passerine which, if accepted, will be the first March record, was a **Short-toed Lark** *Calandrella cinerea* at Farlington (Hampshire) on 13th. Finally, an **Osprey** *Pandion haliaetus* appeared at Minsmere on 30th March and at Walberswick on 31st, and the breeding pair were back at Loch Garten (Inverness-shire) during the first week of April.



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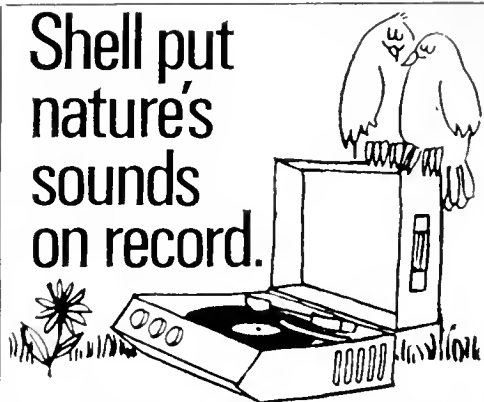
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# *British Birds*

## Effect of 'Hamilton Trader' oil on birds in the Irish Sea in May 1969

*P. Hope Jones, G. Howells, E. I. S. Rees and J. Wilson*

### INTRODUCTION

Just before dawn on 30th April 1969 the tanker *Hamilton Trader* was damaged in a collision with a German coaster near the Bar light vessel in Liverpool Bay. About 700 tons of heavy fuel oil were spilled into the sea. This incident provided an opportunity to trace the fate of the oil, and birds which encountered it, as it drifted in the Irish Sea for two weeks before coming ashore in Cumberland. Liaison was maintained between a wide range of institutions and individuals, and this report collates the ornithological information to present a fairly full picture of the course of the incident.

### MOVEMENT OF THE OIL

Fig. 1 shows the oil movements in relation to the coastlines of north Wales and north-west England. With light north-west winds during 30th April and 1st May the oil remained in a compact serpentine slick near the Queen's Channel, which leads into the Mersey. On the 2nd the oil started moving towards the north Wales coastal resorts under a north-east wind of 20-25 knots, which, however, then veered south of east a few hours before the main slick would have been driven ashore. With variable winds, the main slick moved to a position ten miles north of the Great Orme on the 3rd and it remained in the same area until the 5th, but a number of smaller slicks seem to have moved closer inshore along the coast after breaking away from the main mass around the banks off the Mersey. The closest these smaller slicks came to the coast was  $1\frac{1}{2}$  miles off Rhyl on the 4th. Light winds from the southerly quarter then carried the slicks to the north so that by 7th May the oil was centred 16 miles north of the Great Orme.



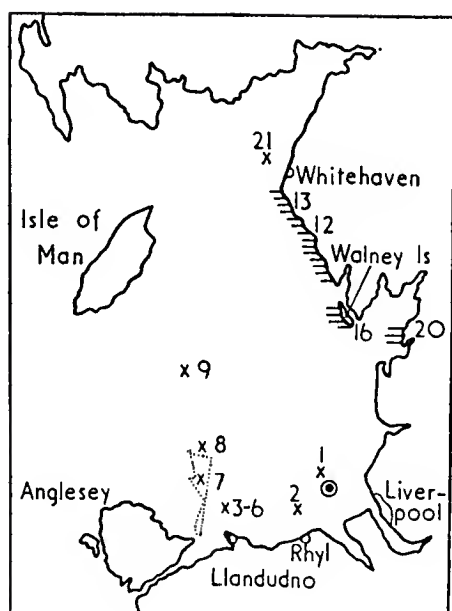


Fig. 1. Oil movement in relation to the coastlines of north Wales and north-west England following the *Hamilton Trader* incident in April-May 1969, and track of the bird-counting transect of 7th May

⊙ collision point between the tanker and coaster on 30th April

x observed position of oil at sea on indicated dates in May

≡ position of the oil on beaches on indicated dates in May

..... track of patrol vessel during transect count on 7th May

On the 8th stronger winds from the south and west began moving the oil fairly rapidly across Liverpool Bay, until on the 12th oil was reported arriving along a 21-mile length of the Cumberland coast between Silecroft and St Bees Head. By 21st May the whole of the Cumberland coast between Haverigg and Grune Point was affected and further pollution, though from a different source, had been reported from the Lancashire coast between Southport and Fleetwood.

The *Hamilton Trader* was on charter to Esso, and that company took the major part in the treatment of the oil slicks at sea. Corexit was the only dispersant used in any quantity, but the amount even of that was small and, since spraying was well offshore, the toxic effects were probably minimal. Crop-spraying aircraft and two fishing boats were used in the operation which lasted only from 3rd to 5th May and took place mainly off Rhyl, but also, to a small extent, in the area of the main slick north of the Great Orme.

#### OILED BIRDS: NORTH WALES

As early as 30th April oiled birds began to turn up on the shores of south-west Lancashire and the Wirral peninsula of Cheshire. By 7th May a total of 113 Guillemots *Uria aalge*, one Razorbill *Alca torda* and one gull *Larus sp* had been brought to the Merseyside sections of the Royal Society for the Prevention of Cruelty to Animals. Fig. 2 shows the numbers of oiled Guillemots brought to the R.S.P.C.A. in Liverpool during this period.

Live oiled birds began coming in along the north Wales coast on 2nd May, with maximum arrivals apparently on the 3rd and 4th, and numbers tailing off almost to nil by the 10th. Most of these

**Table 1. Oiled birds brought in at Rhyl and Llandudno during 2nd-10th May 1969**

The figures for Rhyl refer to birds picked up on the shores of north Flintshire and east Denbighshire (13 miles from Point of Air to Pensarn), while those for Llandudno refer to shores of west Denbighshire and the Llandudno area of Caernarvonshire (12 miles from Llanddulas to Great Orme)

	RHYL		LLANDUDNO	
	Number	Percentage	Number	Percentage
Guillemot <i>Uria aalge</i>	341	95.0%	1,129	96.1%
Razorbill <i>Alca torda</i>	12	3.3%	36	3.1%
Red-throated Diver <i>Gavia stellata</i>	3	1.7%	1	0.9%
Common Scoter <i>Melanitta nigra</i>	1		—	
Herring Gull <i>Larus argentatus</i>	2		7	
Kittiwake <i>Rissa tridactyla</i>	—		2	
TOTALS	359	100%	1,175	100%

were taken to the R.S.P.C.A. inspectors at Rhyl and Llandudno, but the vast majority were so badly fouled by oil that they had to be destroyed immediately. Attempts to rehabilitate about 20 of the least badly oiled proved abortive. Details are set out in table 1; only 20 oiled birds were reported from coasts west of the Great Orme up to, and including, eastern Anglesey. The numbers brought each day to Rhyl and Llandudno are shown in fig. 2.

A series of counts was carried out by Nature Conservancy staff along the two-mile beach between Llanddulas and Abergele, Denbighshire, to follow the pattern of fresh arrival of oiled birds on shore. Live birds were either taken to the R.S.P.C.A. (if not too badly oiled) or despatched on the spot, all corpses being buried above high water

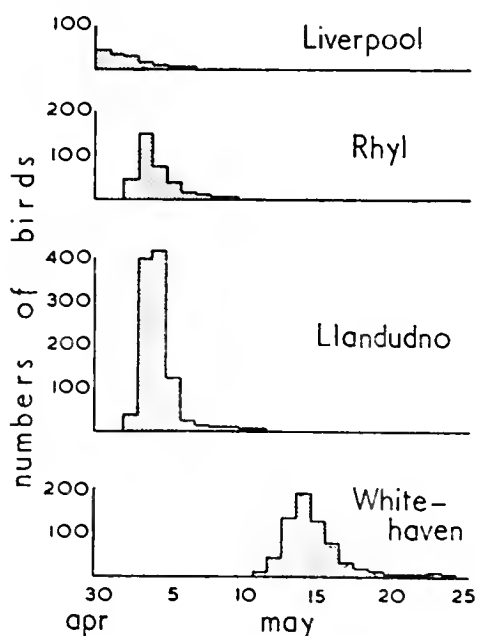


Fig. 2. Numbers of oiled Guillemots *Uria aalge* brought to R.S.P.C.A. Inspectors in four coastal towns of north Wales and north-west England in April-May 1969

**Table 2. Oiled Guillemots *Uria aalge* found on a two-mile stretch of shore at Llanddulas, Denbighshire, in May 1969**

On the 3rd and 4th an unknown number of live Guillemots had been taken from the beach before the count was done. Only five other birds were found oiled: a dead Puffin *Fratercula arctica* on the 3rd; a dead gull *Larus sp* on the 5th; and a dead Razorbill *Alca torda* and two live Herring Gulls *L. argentatus* on the 6th

Date	Alive	Dead	Date	Alive	Dead
2nd	10	0	6th	6	2
3rd	19	2	7th	7	0
4th	9	3	8th	0	0
5th	5	4	9th	0	0

mark. Details are set out in table 2 which confirms that the peak of oiled birds on the shore in this area was 2nd-4th May, thus eliminating any possibility of bias due to the fact that the 3rd-4th was a weekend (when more people were likely to be walking on the beaches).

On 7th May E.I.S.R. and P.H.J. made a sea trip in the patrol vessel of the Lancashire and Western Sea Fisheries Joint Committee, the objects being to survey an area for oiled seabirds and to establish the position, extent and appearance of any floating oil. This was in effect a transect of  $42\frac{1}{2}$  miles from the Menai Straits; the track is plotted in fig. 1. On the outward journey 22 oiled birds were noted in the mouth of the Menai Straits, and at a position some 16 miles north of the Great Orme a tideline about half a mile long in the sea was found to contain ten seabird corpses. Over the next few miles, there were extensive patches of oil comprising scattered tarry lumps up to 200 mm across, and several small slicks of thin filmy oil, some of them with thicker black centres. No oil was observed over the course of the inward trip. From 07.15 hours to 14.40 hours GMT a continuous watch was kept and all seabirds were recorded as alive, oiled or dead (table 3). Counts were done by scanning the water and sky with  $8 \times 40$

**Table 3. Numbers of birds recorded on a  $42\frac{1}{2}$ -mile transect out from the Menai Straits on 7th May 1969**

The track is shown in fig. 3. The totals include neither gulls and Fulmars seen round fishing boats nor birds within the Menai Straits

	Total alive	Number alive oiled	Percentage oiled	Total corpses
Fulmar <i>Fulmarus glacialis</i>	127	29	23%	0
Gannet <i>Sula bassana</i>	55	1	2%	1
Gulls <i>Larus spp</i>	191	6	3%	1
Kittiwake <i>Rissa tridactyla</i>	111	4	4%	0
Razorbill <i>Alca torda</i>	0	0	—	1
Guillemot <i>Uria aalge</i>	51	14	27%	18
Puffin <i>Fratercula arctica</i>	2	0	—	0

binoculars and recording all birds in a notebook; on the prow of the patrol vessel, eye-level was ten to twelve feet above sea-level. About a quarter of the Fulmars *Fulmarus glacialis* were obviously oiled, but, despite this, extremely few are known to have been washed ashore oiled during the incident.

#### OILED BIRDS: CUMBERLAND

On the Cumberland coast, oiled live birds began to arrive on 11th May, with numbers reaching a peak on the 14th and falling away afterwards. From the counts available, there was evidently a complication in this area of a double arrival of live and freshly-dead birds

**Table 4. Numbers of oiled birds collected on the shores of Lancashire and Cumberland in May 1969**

The live birds, which were collected only along the Cumberland coast and brought to the R.S.P.C.A. Inspector at Whitehaven, probably represented the local stock, whereas the counts of corpses between the estuaries of the Ribble and the Solway could have included birds killed anywhere off the coasts of north Wales, Lancashire and Cumberland. Percentages are given only for those species which formed more than 1% of the total

	LIVE		DEAD	
	Number	Percentage	Number	Percentage
Red-throated Diver <i>Gavia stellata</i>	4	—	13	—
Great Northern Diver <i>Gavia immer</i>	—	—	1	—
Fulmar <i>Fulmarus glacialis</i>	1	—	17	—
Manx Shearwater <i>Puffinus puffinus</i>	—	—	1	—
Gannet <i>Sula bassana</i>	2	—	42	2.3%
Cormorant <i>Phalacrocorax carbo</i>	1	—	7	—
Shag <i>Phalacrocorax aristotelis</i>	—	—	1	—
Mallard <i>Anas platyrhynchos</i>	—	—	1	—
Common Scoter <i>Melanitta nigra</i>	1	—	3	—
Shelduck <i>Tadorna tadorna</i>	—	—	4	—
Oystercatcher <i>Haematopus ostralegus</i>	—	—	2	—
Turnstone <i>Arenaria interpres</i>	—	—	1	—
Bar-tailed Godwit <i>Limosa lapponica</i>	—	—	1	—
Dunlin <i>Calidris alpina</i>	—	—	1	—
Great Black-backed Gull <i>Larus marinus</i>	—	—	8	—
Lesser Black-backed Gull <i>Larus fuscus</i>	—	—	23	1.2%
Herring Gull <i>Larus argentatus</i>	7	1.1%	38	2.1%
Black-headed Gull <i>Larus ridibundus</i>	—	—	11	—
Kittiwake <i>Rissa tridactyla</i>	—	—	3	—
Little Tern <i>Sterna minuta</i>	—	—	1	—
Razorbill <i>Alca torda</i>	9	1.4%	102	5.5%
Guillemot <i>Uria aalge</i>	601	96.0%	1,558	84.2%
Black Guillemot <i>Cepphus grylle</i>	—	—	1	—
Puffin <i>Fratercula arctica</i>	—	—	1	—
<b>TOTALS</b>	<b>626</b>		<b>1,851</b>	



oiled locally, and of longer-dead birds carried up from north Wales. Repeat counts on a few areas by staff of the Royal Society for the Protection of Birds and of the Nature Conservancy suggested that live, badly oiled birds came ashore from 11th to 14th May and that, while there were some dead birds in this period, the majority of corpses came ashore between the 15th and 24th, with a probable peak on the 19th. Two casualty lists have therefore been drawn up in table 4. The daily totals at Whitehaven are also shown in fig. 2.

In the Isle of Man, there was no evidence of any abnormal arrival of oiled birds during May (E. D. Kerruish *in litt.*).

#### CALCULATION OF GUILLEMOT MORTALITY

Figures for Guillemot mortality have been calculated from three sources (table 5). Those for birds brought in to the R.S.P.C.A. are quite accurate, but represent only a percentage of the total numbers killed by the oil, so numbers of dead and heavily oiled Guillemots out at sea have been estimated from the results of the patrol vessel transect on 7th May. Calculations have been based on two major premises: (i) that the transect travelled by the ship was representative of conditions over a wide area, and (ii) that Guillemot corpses were visible within 25 yards of the prow of the ship, and live oiled birds within 75 yards.

In relation to the first point, the trip was a relatively long one, and the area traversed was partly that where the oil slicks were situated and partly that between the oil and the land; the data should

**Table 5. Numbers of Guillemots *Uria aalge* and other species known to have died in the oiling incident in the North Irish Sea, May 1969**

In addition to the numbers given below, at least a further 1,500 Guillemots are probably unaccounted for, on the basis of numbers estimated from the transect of 7th May (page 103)

	Guillemots	Other species
<hr/>		
NUMBERS BROUGHT TO R.S.P.C.A.		
Merseyside	113	2
Rhyl	341	18
Llandudno	1,129	46
Bangor and Llangefni	18	2
Whitehaven	601	25
NUMBERS TAKEN HOME BY PUBLIC		
North Wales	40	4
NUMBERS FOUND DEAD ON BEACHES		
North Wales	98	11
Hilbre Island, Cheshire	30	—
South Lancashire	69	9
Cumberland and north Lancashire	1,558	293
<hr/>		
TOTALS	3,997	410

therefore be quite representative of the area where dead and oiled birds could be expected. By checking the tidal drift, it was confirmed too that the vessel did not return through any of the same water. Figures for the distances at which corpses and oiled birds could be seen, although subjective, are thought to represent quite well the distances over which these could be safely identified. Corpses were in any case difficult to spot, and the figures calculated will certainly be minimal in this category; oiled birds were easier to pick out, but even so the observers could not be sure that they saw every one within the prescribed limits. On these assumptions the following calculations have been made:

Outward trip (14.5 miles): 2 corpses and 5 oiled =	
	4.854 corpses and 4.046 oiled per square mile
Inward trip (16.5 miles): 2 corpses and 3 oiled =	
	4.266 corpses and 2.133 oiled per square mile
Average values for the above (31 miles) =	
	4.541 corpses and 3.028 oiled per square mile
Outer area (9.25 miles): 1 corpse and 4 oiled =	
	3.806 corpses and 5.075 oiled per square mile

On the basis of these calculations, the outer area of approximately  $5 \times 5$  miles would have contained 95 corpses and 127 oiled birds and, as it was considered that conditions similar to that passed through by the ship extended over a minimum area of  $15 \times 20$  miles, the transect area would have contained 1,362 dead Guillemots and 908 live ones. In sum, it was estimated that a minimum of 2,465 dead and dying Guillemots were present on 7th May in the sea off the north Wales coast. Some of these are presumed to have turned up later on the Cumberland and Lancashire coasts, and a subtraction of corpse numbers recorded on those shores from corpse numbers calculated at sea gives a deficit of at least 1,500 as shown in the final 'balance sheet' in table 5.

#### CORPSE DRIFT EXPERIMENT

Permission was obtained from the British Trust for Ornithology to ring dead auks and return them to the sea, in order to discover the proportions recovered, the locations of recovery, and the rates at which auk corpses moved about in the sea in relation to local winds, currents and tides. Ringed and with one wing cut off in each case (see later), 382 dead Guillemots and 28 dead Razorbills were taken out by boat on 9th May and dropped at sea in various positions off the Denbighshire and east Caernarvonshire coasts. In the next few days the wind blew from between south and south-west, and the ringed corpses began to turn up in numbers on the Walney coast of Lancashire on 17th May—eight days after being placed in the sea. More recoveries followed in this area on the 18th, and then the majority

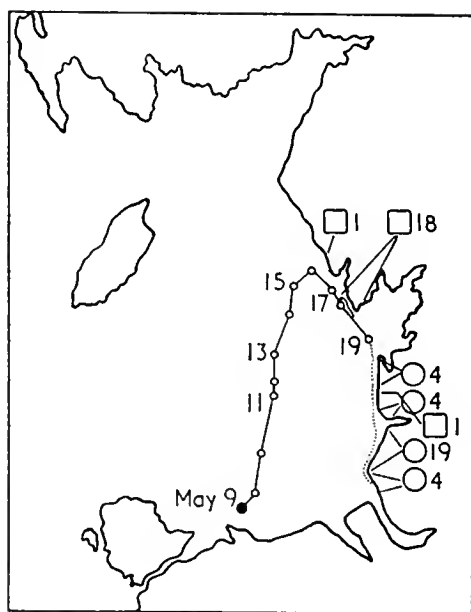


Fig. 3. Recovery locations in north-west England, and probable track, of ringed corpses of auks (*Alcidae*) deposited in the sea off north Wales in May 1969

- area in which ringed corpses were dropped into the sea
- calculated track of floating corpses on indicated dates in May
- localities and numbers of ring recoveries on 17th-18th May
- localities and numbers of ring recoveries on 19th-24th May

on the 19th and 20th were reported from the Fylde and Southport coasts of Lancashire (see fig. 3).

Along most of its length the shore between Liverpool and St Bees Head is of easy access and, because of the pleasant time of the year and the publicity given to the oil pollution and to the critical condition of oiled seabirds, much of this stretch was surveyed both by bird-watchers and by members of the public.

The R.S.P.B. and the Nature Conservancy organised counts of tideline seabirds in many areas, and the R.S.P.C.A. centres became known as places to which oiled birds should be taken. There was therefore as good a coverage of this length of shore as could reasonably be hoped for. This resulted in the reporting of 82 of the 410 ringed corpses, or exactly 20%. Recoveries continued until September, but the majority were in the second week after ringing and all but two within seven weeks. Omitting three which could not be dated accurately, we have the following time scale:

May 17-23	May 24-30	M J 31-6	June 7-13	June 14-20	June 21-27	June 28 to September	TOTAL
51	7	9	4	2	4	2	79

Following the *Torrey Canyon* disaster in 1967, Smith (1968) showed that the oil appeared to move with the wind at 3.4% of the latter's velocity, and other workers (e.g. Hughes 1956) have tended to confirm that in the open sea the surface film of water does move at about this rate, though Tomczak (1964) put it somewhat higher at 4.2%. The thickness of the floating object almost certainly has an important effect on its response to wind, and auk corpses might be expected to

travel at slower rates than floating oil. To check this, mean wind speed and direction figures (calculated from a recording anemograph) were obtained from the Meteorological Office of the Royal Air Force station at Valley on the west coast of Anglesey, and a wind vector analysis was carried out on an hourly basis. It proved possible to fit the track of the auk bodies to the point and time of arrival on Walney Island on 17th May by using the true resultant wind direction and 2.2% of the wind velocity. After several of the floating corpses had gone ashore on Walney on the 17th and 18th, we calculate that late on the 18th and during the 19th most of the remainder would have been moving into the mouth of Morecambe Bay between Walney and Fleetwood. The flow of fresh water out of this bay is known to be quite substantial (A. R. Helliwell *in litt.*) and, despite a light southerly wind on the 20th, this southward current would probably have been sufficient to ensure that the corpses were washed up on the shores between Fleetwood and Formby, where in fact many ringed birds were found on the 19th and 20th.

In an analysis of this kind, there is room for error on several counts. Harvey (1968) drew attention to the possible effects on surface water movement of the general north and south run of the land on either side of the Irish Sea, and Reynolds (1956) observed that wind speed at any one station in the northern Irish Sea may be 'not a very good guide to quantitative estimates of conditions over the area as a whole'. In the present case, oil was first reported on the Cumberland coast on 12th May and continued to arrive over the next few days, while ringed corpses turned up about 20 miles to the south-east of this early oil five days afterwards. The reasons appear to be that the corpses were put into the sea about 20 miles south-east of the main oil patch and that, because of their greater drag, they travelled less quickly. If future studies confirm that auk-sized birds travel in seawater at about 2.2% of the wind velocity, it is likely that bigger corpses such as Gannets *Sula bassana* and Cormorants *Phalacrocorax carbo* will be found to travel slightly slower than this, and small birds slightly faster—perhaps up to 3% of the wind velocity.

One potentially important recovery was made on 9th June when the body of a ringed Guillemot was caught in a trawl on the bottom of the sea six miles off the coast near Southport, possibly the first positive evidence that seabird bodies sink. Although it may be that the bird had arrived there via the seas off Walney Island and Morecambe Bay, there is a possible alternative explanation. Ramster (1965), from returns of seabed drifters, was able to map the residual bottom currents over the bed of the north-east Irish Sea. Below most of the calculated drift track of the ringed corpses in our experiment, the bottom currents between March and October run in a generally eastward direction, so if any corpses were to sink at some stage



along this track they would indeed be most likely to end up along the Lancashire coast between Fleetwood and Liverpool. It should be remembered that 80% of the ringed corpses were not recovered and even if twice as many turned up on the well-watched tidelines as were actually reported, this still leaves over 50% of the corpses unaccounted for. Since ringed corpses were reported only from the Lancashire and Cumberland coasts, it seems relatively unlikely that many drifted off elsewhere. It is thus possible that at least half of the corpses put into the sea sank at some stage between 9th and 21st May. This raises one important point which serves to illustrate the difficulties of estimating numbers involved in seabird mortality incidents: 20% of the ringed corpses were reported on the beaches and, if this same proportion is applied to the 1,558 unringed oiled Guillemots found on tidelines (table 4), then the number of unringed corpses in the Irish Sea on 7th May may have been nearer to 7,790 than the 2,465 estimated from the patrol vessel transect count. Coulson *et al.* (1968), studying an incident of seabird mortality in north-east England, calculated that, despite favourable onshore winds, only 25% of Shag corpses were found on the tidelines examined—a figure very close to that provided by the present experiment—but they were no more able to account for the remainder of their Shags than we are for our missing Guillemots.

This experiment has suggested that oiled birds dying in the slick would have moved slightly more slowly than the oil itself; therefore, since the oil did not come ashore in north Wales, one would not expect many corpses to have turned up on the tidelines there. This explains why the vast majority of oiled auks coming ashore in north Wales were live ones which must have made a positive effort to get to land.

#### AGE AND SUBSPECIES OF GUILLEMOT CORPSES

The two subspecies of Guillemot breeding in the British Isles can be distinguished by the colour of their upper-parts, *U. a. albionis* (the southern form) being a greyish-brown and *U. a. aalge* (the northern) being much darker and tending towards black. Breeding populations of these two races meet in south-west Scotland and there is a wide zone there where mixed populations and intermediate types occur (see *The Handbook*).

All the corpses obtained from the R.S.P.C.A. at Rhyl and Llandudno were inspected; one wing was cut off every Guillemot for future study and each corpse, on the basis of plumage colour, was given a subspecific rank. On a visual assessment of the colour of back, mantle and head, those birds whose plumages were not too fouled by oil were allocated to three categories of 'Southern', 'Northern' and 'Intermediate', and were further divided into those with full summer

Table 6. Subspecies types of corpses of Guillemots *Uria aalge* in north Wales in May 1969

	Southern	Intermediate	Northern
Summer plumage	326 (91.6%)	28 (75.7%)	6 (37.5%)
'Winter' plumage	30 (8.4%)	9 (24.3%)	10 (62.5%)
Proportion	87.0%	9.1%	3.9%

plumage and those with remnants of winter plumage still obvious (table 6). The proportion with traces of winter plumage was much higher amongst the northern birds than amongst the southern, and this presumably reflects the fact that most of the northerners were immature (possibly first-year) non-breeders which were summering south of their natal colonies.

A sample of wings from this collection was later examined by Dr W. R. P. Bourne and P.H.J., when comparison could be made with wings from good northern Guillemot stock. This confirmed the original findings that the vast majority, 87%, showed the characters of the southern race. The wing sample was also examined for age on the criteria described by Bourne, Parrack and Potts (1967)—that pale edgings to the longer under wing-coverts indicate first-year Guillemots. Of the 56 clean southern wings examined, 30 (54%) were considered to have come from first-year birds. This seems an extremely high percentage for such a long-lived species, and two possible reasons suggest themselves. On the one hand, the criterion used for first-year identification may be neither as accurate nor as decisive as one might wish. Furthermore, in Guillemots 'the adoption of summer plumage is still an unknown issue' (Dr W. R. P. Bourne *in litt.*) and this could complicate the picture still further so late in the season. Mean wing-length of the supposed adults from north Wales differed by only a marginal 0.2 mm from that of the supposed first-year birds (table 7), and this is in contrast to wings from *Torrey Canyon* corpses where there was a difference of 1.4 mm between the means of these two groups. On the other hand, an alternative reason for the high percentage of first-year birds could be adduced if the ageing criterion were in fact valid: since the area of the maximum kill is known to be

Table 7. Wing measurements of 56 Southern Guillemots *Uria aalge albionis* killed by oil in north Wales in May 1969

	Number in sample	Mean wing-length (mm)	Standard deviation	Range (mm)
Supposed adult	26	194.2	4.73	186-206
Supposed 1st year	30	194.0	5.38	185-202

extremely rich in small fish (presumably Guillemot food), it could act as a collecting ground for many young birds, as well as a feeding site for adults commuting from their comparatively small Llandudno breeding colonies. In general, we feel that until taxonomic material of known age is available in good quantity, it would be unwise at this stage to lay too much emphasis on this particular ageing criterion.

#### EFFECT ON LOCAL BREEDING STOCK

Guillemots and Razorbills constituted over 95% of the local mortality in north Wales and Cumberland; breeding sites of these auks are relatively few in the areas which would seem to be potentially vulnerable in this incident (fig. 4). Apart from the birds involved in the corpse ringing experiment there were only two 'genuine' recoveries amongst all the corpses examined: a Guillemot ringed as a nestling on Great Saltee, Wexford, on 3rd July 1966 was found oiled near Bootle, Cumberland, on 14th May 1969; and another Guillemot ringed as a nestling at Port St Mary, Isle of Man, on 3rd July 1965 was found oiled at Lower Heysham, Lancashire, on or about 17th May 1969. Neither contributes directly to resolving the question of the origin of the birds killed by the *Hamilton Trader* oil.

Two north Wales colonies were checked immediately after the peak of the kill. On 6th May a careful count of those at the Ormes was made from the sea: 103 Guillemots on the Little Orme and 195 on the Great Orme compared with 365 and 790 counted in mid May 1966. This is an apparent reduction of 74% which is probably large enough to be meaningful, even bearing in mind that numbers present at

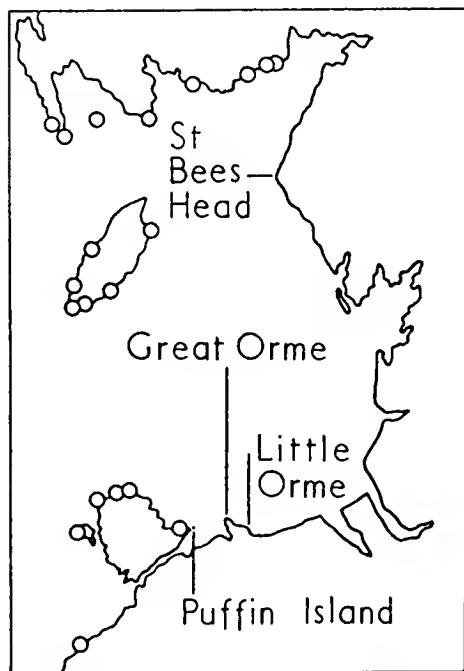


Fig. 4. Breeding colonies of auks (Alcidae) in the eastern half of the Irish Sea. Those considered likely to have been affected in the *Hamilton Trader* incident in April-May 1969 are named; all others are marked with open circles.

auk colonies vary greatly from hour to hour as well as seasonally. As many as 887 were counted at the Ormes on 13th June 1969, but presumably many of these were non-breeders which do not arrive on the ledges until late in the season (Southern *et al.* 1965). A similar count from the sea was made of the Guillemots on Puffin Island on 7th May and 12th June 1969: totals of 330 and 269 indicated a 4% and 22% loss from a count of 345 in mid June 1966. It is not known if there were changes at other Anglesey colonies because of the lack of reliable pre-1969 information, but subjective assessments do not indicate any major reduction in 1969.

Razorbill figures are notoriously difficult to estimate and the evidence for any change is conflicting. At the Ormes in mid May 1966 only 74 occupied sites were counted, while in mid June 1969 the figure was 117 (probably because the birds were counted more efficiently). Conversely, at Puffin Island, 183 occupied sites were counted in mid July 1967, compared with 114 in mid June 1969.

The situation at St Bees Head is not very clear when trying to compare 1969 figures with previous years' counts. J.W. counted 1,329 Guillemots on the cliffs on 16th May, but J. Sheldon found 2,538 there on 22nd June, an increase probably due to the late appearance at the colony of immatures. There was almost certainly a kill of breeders from here, in view of the 601 Whitehaven corpses, but any true reduction in breeding stock cannot readily be calculated.

From the above we conclude that possibly about 850 breeding adults were removed by this oiling incident from the Orme colonies at Llandudno and an unknown number from the St Bees colony. The numbers of Guillemots on the ledges at a breeding colony represent only a fraction of the total in that colony and, if the figures suggested by Southern *et al.* (1965) are any guide, then the losses from the Orme colonies may be nearer 1,500 individual Guillemots. The large number known to have been killed—and the even greater number estimated—presumably relates in fair measure to immatures and non-breeding adults, and so the recruitment rate to the colonies at which they would have bred may be affected accordingly in subsequent years.

#### ACKNOWLEDGEMENTS

Large numbers of people have been involved in providing the help and information which has resulted in the production of this paper. We are much indebted to the staff of the R.S.P.C.A. in north-west England and north Wales for the provision of figures and seabird bodies, in particular to Inspectors J. Rance of Rhyl, W. Moore of Llandudno, J. Turnell of Barrow, and R. Foster of Whitehaven, and to Chief Inspector T. A. Daniels of Liverpool; staff of the Nature Conservancy's North and North Wales regions, and staff and members of the R.S.P.B., also helped considerably in the collection of information by shore counts of beached seabirds. The help and organisation of C. J. Mead and the Ringing Office staff of the B.T.O. is much appreciated, as too is that of the Meteorological Office staff at R.A.F. Valley in Anglesey. David Saunders kindly produced data from counts in Operation Seafarer,



while G. A. Williams, J. Ramster and A. R. Helliwell provided valuable information on various aspects of water movement in the north Irish Sea. We thank, too, the Lancashire and Western Joint Sea Fisheries Committee for making possible our sea transect in their patrol vessel. Valuable comments on early drafts of this paper were received from Dr W. R. P. Bourne and I. J. Ferguson-Lees.

#### SUMMARY

Following damage to the tanker *Hamilton Trader* off the mouth of the River Mersey on 30th April 1969, about 700 tons of fuel oil were spilled into the north Irish Sea. The oil moved west along the north Wales coast, some miles offshore, almost to Anglesey, and was then blown across the Irish Sea to come ashore along the Cumberland and north Lancashire coasts during mid May.

Over 4,400 birds (91% of them Guillemots *Uria aalge* and 4% Razorbills *Alca torda*) are known to have been killed. Another 1,500—and possibly as many as 6,250—are estimated to have been lost at sea. About a quarter of these almost certainly came from the breeding colonies at Llandudno (whose Guillemots were possibly depleted by 75%); a small proportion came from the colonies at St Bees Head, Cumberland, and Puffin Island, Anglesey, while the remainder were probably immatures and non-breeding adults from unknown sources. About 87% of the Guillemot corpses examined in north Wales showed plumage colours characteristic of the southern form *U. a. albionis*.

An experiment, involving the dropping at sea of ringed dead auks, showed that auk corpses floating in the open sea are likely to move with the wind and at 2.2% of its velocity. Near the coast, local current and tidal movements can have greater influence than the wind on direction of drift, while those corpses which sink are likely to move according to the pattern of bottom currents. 20% of the experimentally ringed corpses were recovered within four months; it is suggested, from circumstantial evidence, that perhaps more than 50% sank within eleven days.

The disaster could have been mitigated by prompt action in cleaning up or 'destroying' the oil soon after the spillage; many inadequacies in ornithological knowledge must be resolved before the true effects of such an incident can be monitored with confidence and precision.

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*P. Hope Jones, Bedwen, Bro Enddwyn, Dyffryn Ardudwy, Merioneth*

## More examples of the best recent work by British bird-photographers

*Plates 16-23*

This is the eleventh annual selection of the best contemporary work by British bird-photographers. Six of the species and three of the photographers are new to the series which has therefore now included 150 photographs of 104 species by 59 people. We think that this latest selection, from a short-list of nearly a hundred prints, comes well up to the standard we set out to achieve. There has been a welcome recent trend towards photography away from the nest, mainly brought about by the development of the 35mm camera and telephoto lenses. Before these were available it was very difficult to get sufficiently close to a bird except at the nest or at bait. In the current selection no less than nine of the 14 photographs were taken away from the nest. We hope that this trend will continue because most British and numerous European breeding species have been photographed incubating eggs or feeding young, many of them so often that there is an inevitable sameness about the results. On the other hand, an enormous harvest waits to be gathered in the fields of display and behaviour.

We are always pleased to welcome new names. D. N. Dalton has been a keen photographer for many years and his Turtle Dove *Streptopelia turtur* (plate 18a) makes it surprising that his work has not been included before. On the other hand, Dr D. L. Urry is a comparative newcomer, and few had heard of him and his wife until they took first and second prize respectively in the 'Birds in Flight' competition organised by the Royal Society for the Protection of Birds and their pictures were subsequently shown at the 'Flying Free' exhibition arranged by Kodak Limited and the R.S.P.B. at Kodak House, London, in April 1969; they have both specialised on birds in flight and we have selected Dr Urry's flock of Starlings *Sturnus vulgaris* (plate 20a) as the most unusual. The third new photographer is Peter John Markey, whose charming photograph of Little Terns *Sterna albifrons* (plate 22b) was, however, taken as long ago as 1960 (whereas all the rest relate to 1968-70); it is also the first time that this species has featured in the series. Incidentally, had Mr Markey photographed this nest in the last three years, he would have had first to obtain approval from the Nature Conservancy, for this is a species on Schedule 1 of the Protection of Birds Act 1967. We take this opportunity of reminding photographers that, before attempting to photograph any Schedule 1 bird at or near the nest, they are required by law to apply to the Nature Conservancy, 19 Belgrave Square, London SW1.

Of the other five species (apart from the Little Tern) appearing

in this selection for the first time, it is appropriate that one should be a Curlew Sandpiper *Calidris ferruginea* to represent the unprecedented numbers in autumn 1969 (*Brit. Birds*, 62: 503-504): J. A. W. Jones took his picture (plate 23a) on the site of the new Jumbo Jet runway at Heathrow Airport. Brent Geese *Branta bernicla* have also been in the news in connection with the siting of London's third airport, though the photograph by Harold Hems (plate 20b) was taken not near Foulness but at Wells, Norfolk. Another delightful wildfowl study is Dr Pamela Harrison's picture of a female Barrow's Goldeneye *Bucephala islandica* and ducklings (plate 18b) in Iceland, the only country in Europe where this otherwise American duck breeds. It has never been recorded in Britain and the Black-eared Wheatear *Oenanthe hispanica* is but a rare vagrant here; the latter nests commonly in Portugal, however, where Dr R. G. Carlson obtained his photograph of a male (plate 17a). Turning from the rare to the more common, it seems surprising that the Little Owl *Athene noctua* has not previously appeared in the series, considering how many times this species has been photographed in Britain, but we think that Harold E. Grenfell's study with wings raised (plate 19) is as good as any we have seen.

We like H. McSweeney's photograph of a Merlin *Falco columbarius* at its nest in a tree (plate 16) because it illustrates better than most the down-clad young and the effect of height above the ground. F. V. Blackburn's Grasshopper Warbler *Locustella naevia* (plate 17b) shows the bird in an interesting aggressive posture. Two studies of black-and-white coastal birds, both masterpieces in their own way, are Sidney J. Clarke's Oystercatcher *Haematopus ostralegus* (plate 21a) and Arthur Gilpin's group of Black Guillemots *Cepphus grylle* in summer plumage (plate 21b). Brian and Sheila Bottomley produce so many unusual and outstanding photographs of birds seldom featured away from the nest that we hope in the next year or two to publish another series by them alone (*cf. Brit. Birds*, 61: plates 63-74); meanwhile, we have chosen their adult Little Gull *Larus minutus* in winter plumage (plate 22a) because we have never seen a better one of this species in flight. Finally, R. J. C. Blewitt has in recent years produced some exceptionally fine photographs of waders, one of the best of which is his Ruff *Philomachus pugnax* with a morsel of food (plate 23b).

We are immensely grateful to all who submitted prints this time and hope that those whose photographs were not chosen will understand that we have only eight plates available. Once again, too, we are particularly indebted to the Zoological Photographic Society, the Nature Photographic Society and the Nature Photographers' Portfolio for helping us to make the selection as wide-ranging as possible. We appeal to all bird-photographers who take pictures in black-and-white to let us see their best results. Prints for next year's selection should reach us by 12th February 1971.

ERIC HOSKING

# The first ten years of the Rarities Committee

*D.I.M. Wallace*

## INTRODUCTION

This survey is concerned with the efforts of the editors of this journal, and of the Rarities Committee set up by them in 1959, to collect, investigate, judge and publish annually in one document the essential details of all the rarer vagrants seen in Britain (and, originally, Ireland also) in any year. It covers the policy applied, the principles worked to and the product evolved in the first ten years, and is therefore mainly concerned with the activities of committee members and observers rather than birds. The committee believes that such a review is timely, not because ten years is a magic term, but because much has happened during it. To log the developments is important if the history of field identification, record assessment and interpretation is not to remain a subject of mere editorial aside or hearsay, a point of some criticism in recent years and only partly satisfied by a frank discussion of the committee's activities at the Conference of Local and Regional Report Editors organised by the British Trust for Ornithology at Swanwick, Derbyshire, in September 1967.

Furthermore, so accustomed now are observers to the role of the committee that the sometimes fierce arguments attending its initiation (and occasionally since) are almost forgotten. While this undoubtedly reflects the increasing maturity and discipline of observers, such a result was not arrived at by chance and the need to take stock of the process once in a while will remain. Accordingly, the chairman of the committee asked me to carry out this review. Although I am no longer a member, I hope the fact that until recently I was in touch with a wide circle of observers throughout Britain and Ireland is at least part of the reason for my selection for this task. Furthermore, from my current station in Nigeria, distance may lend impartiality and not enchantment. I have received enough rejections myself from the committee never to feel the latter about it!

## THE COMMITTEE'S ORIGIN

Before the committee's establishment, the responsibility for the vetting, acceptance or rejection and publication of rarity records was extremely diffuse. The increase in knowledge and mobility in the early 1950's had created a national upsurge in such observations. The rarity, always the ultimate prize for ordinary bird-watchers, passed from being an occasional delight to a constant goal for some and a more common by-product for others. New names flooded the county reports as field teaching in natural history fostered a remarkably confident generation



of observers. Tourism in Europe could add more experience in two weeks than was available in a British county in ten years. The Mecca of Fair Isle disseminated a rarity-finding technique and, even if the migration theories that it gave birth to have had to be reconsidered, a certain preoccupation with periods of south-east winds still affects many bird-watchers. The validity of sight records, and their use as raw data for analysis on a national scale, finally became established. New textbooks fined down diagnosis and post-war experience broke through several old barriers. Field time and report time were out of joint.

There began to be a widening gap between the total product of rarities and its disciplined disposal in the literature. The days were gone when one editor of this journal could cope and the communication of bird news evolving only slowly from the pre-war situation still resided chiefly in local publications mainly edited by people whose basic field experience often largely stemmed from the 1930's and whose optimum learning period was therefore over (a real problem in rarity recording where the visual acuity of youth is so relevant). Certainly there was a gathering of highlights, generally in this journal and specifically from official observatories by the British Trust for Ornithology during the short and happy life of *Bird Migration* (and in a brief afterglow in *Bird Study*), but little balance of assessment was achieved.

Fortunately I. J. Ferguson-Lees, never one to tolerate inadequate editing and in a unique central position to conceive a solution, recognised the situation. In concert with his colleagues, he formed the concept of the Rarities Committee which would have as its prime function the compilation of an annual report covering all records of the rarer vagrants in Britain and Ireland. Following the canvassing of support in 1957 and 1958 and the conscription of ten members, including G. A. Pyman, the first of its extremely hard-working secretaries, the committee began its task in June 1959, faced with virtually two years' work in the records of 1958 and 1959. How has it performed since?

#### THE COMMITTEE'S FUNCTIONS

The aims of the committee and their achievement are reviewed below against the main heads of functions set out in the foreword to its first report (*Brit. Birds*, 53: 153-158).

(1) 'To cope with the enormously increased number of observations of rare birds at a national level'

If this aim is interpreted strictly from the viewpoint of once a rarity, always a rarity, then the committee has to some extent failed in this respect. Such a comment, however, ignores the fact that the committee reserved the right to reconsider the initial and often arbitrary decisions that were the basis of the first list of species covered (*Brit. Birds*, 52:

241-244). One of the chief products of its work has been to complete the demonstration that some species apparently rare in 1957 were not so rare in the following ten years. Such was the workload created by certain 'common' rarities that there have been two contractions of the list of species (for details of the main one in 1963 and subsequent correspondence, see *Brit. Birds*, 56: 394; 57: 303-305). These did for a time produce a reduction in the committee's span of cover and workload, but, with annual additions to the British List and the current upsurge in records submitted, matters are again fast approaching a possible breakpoint (see table 2 on page 122).

Fortunately, a ten-year analysis of 'scarce migrants' by Dr J. T. R. Sharrock (*Brit. Birds*, 61: 470-471) is under way and three instalments have now been published (*Brit. Birds*, 62: 169-189, 300-315; 63: 6-23). This analysis includes six of the species which were deleted from the Rarities Committee's list in 1963—Pectoral Sandpiper, Mediterranean and Sabine's Gulls, and Melodious, Icterine and Yellow-browed Warblers\*—and also several more which are still considered by the committee, but which now produce enough records annually to justify analysis, including White-winged Black and Gull-billed Terns, Aquatic and Greenish Warblers, Richard's and Tawny Pipits and Woodchat Shrike, as well as all the Nearctic waders and passerines.

If this report on scarce migrants can be periodically brought up to date by further composite reviews at intervals of, say, one, two or even five years, then the 'demotion' of rarities may vex less and the scientific value of a full record will be continuously maintained. In this respect, it should perhaps be recorded that the committee's decisions to discard certain species from its list were never unanimous, the loss of information on trends being seen by a minority of members as a serious scientific fault (whatever the original policy laid down). It is therefore pleasing to find the broken threads of data on some of these species being put back together (even if in a separate report) and, as pointed out in 1969 (*Brit. Birds*, 62: 1-3), a growing complement of analyses over the entire spectrum of status in British birds is now well above the horizon. Thus there is less of a crisis than in 1962, but it will be shown later that the load on the committee in 1967 was nearly as great as in the peak in 1960 (while in 1968 the number of records reached a new peak of 510).

This matter aside, there seems to be no real evidence against the committee in the discharge of its responsibility in this general area. Over ten years a total membership of 20 (table 1) and particularly its four honorary secretaries (G. A. Pyman, C. M. Swaine, the late D. D. Harber and, currently, F. R. Smith) have coped manfully. Although delays in record judgment have occurred, they have in most cases been exceptional and more often than not have been caused by intrinsic

\*Scientific names of species mentioned in the text and tables are given in the appendix on page 129.

**Table 1. Membership of the Rarities Committee during 1959-68 in alphabetical order of joining**

The committee's membership in its first ten years was 20 and individual service varied from a few months to the whole period

Name	Position or role	Years of service
H. G. Alexander	Member	1959 to 1963
I. J. Ferguson-Lees	Member	1959 to 1963
	Advisor (also species comments in report)	1964 to date
D. D. Harber	Member	1959 to 1963
	Secretary	1963 to 1966
A. Hazelwood	Member (museum research)	1959 to 1961
P. A. D. Hollom	Chairman	1959 to date
H. P. Medhurst	Member	1959 only
M. F. M. Meiklejohn	Member (also liaison with <i>Scottish Birds</i> )	1959 to 1969
G. A. Pyman	Secretary	1959 to 1961
	Member	1961 to date
R. F. Rutledge	Member (also liaison with Ireland)	1959 to 1960
K. Williamson	Member (also recorder for observatories)	1959 to 1963
I. C. T. Nisbet	Member	1959 to 1963
K. D. Smith	Member	1960 to 1961
C. M. Swaine	Secretary	1961 to 1963
D. G. Bell	Member	1962 to date
R. Wagstaffe	Member (museum research)	1963 to date
A. R. M. Blake	Member	1963 to date
P. Davis	Member	1963 to date
F. R. Smith	Member	1963 to 1966
	Secretary	1966 to date
D. I. M. Wallace	Member (also species comments in report)	1963 to 1968
R. H. Dennis	Member	1967 to date

rather than extrinsic factors. Some members developed bad habits from time to time, but the written chastisement practised upon them by their own colleagues rarely produced other than immediate action! Since the latter part of 1963, slowness in judgment has been caused only by the difficulties of the sure identification of certain species or the inevitable arguments that wax over recirculated records. These, incidentally, are often the ones that teach most and concern such species as Least Sand-piper and Olivaceous Warbler.

Less satisfactory has been the speed of the collation and publication of the report. Excluding the first one, which was inevitably much later, this has appeared in most months from May to December, but recently an early autumn date has usually been held to. It should be understood what a mammoth task the preparation of the report is. A difficult record requiring say two follow-up letters to the observer or local recorder, two recirculations and extraordinary discussion between the honorary secretary, the person preparing the species comments and the executive editor of this journal may raise a need for either activity or decision no less than 40 times before final publication, and even the most straight-

forward rarely less than 25. Taking 30 as a cautious mean, the workload created by the committee's disciplines and routine was over 64,000 functions between 1958 and 1962 and, even after the cuts in the list, it was about 40,000 during the following five years. Allowing for other correspondence and inquiries carried out by the secretary, the report commentator and occasionally individual members, the total workload may well have exceeded 105,000 functions. These comments may sound like inverted boasts, but, particularly when one considers that the secretary has had a hand in about half of them, they in fact measure the hard labour involved. Membership of the committee requires considerable stamina and time, free or manufactured. Calculating the time element is extremely difficult, but it may be noted that most batches of about twelve records will require at least ten hours of private study by the committee and any containing difficult cases may easily take up twice that amount. Thus it is likely that, on average, record judgment and the written comments on the circulation sheets consume at least 400 man-hours a year.

It is therefore considered that the committee need not be ashamed of its productivity, given that the annual report should be as full and interpretative as possible and that the current timing of its publication represents a reasonable compromise between a rushed incompleteness and an out-of-date entirety. As already mentioned, its procedures are absorbing another upsurge in work following a lessening in 1963 and 1964. It is to be hoped that observers will continue to improve the standard of their observation and reporting and thus prevent the threatened breakpoint.

(2) *To assess rarity records 'uniformly and not by the inevitably varying standards of the different county reports alone'*

This is a qualitative function and therefore less easy to review than the process so far covered. Has the committee been successful in giving uniform assessment to each and every record of whatever species? The answer has to be negative. No ten men, however rare, exist who can even pretend to the corporate experience and knowledge necessary for such an Olympian task, but there can be no doubt that the committee has set a new high standard in attempting it at all. This has not been reached without careful attention to the problems among its members of differing personal expertise and, more rarely, bias. It is not that occasionally certain members have attempted to lead (in the legal sense) or rather mislead, but that always the response to such behaviour has been immediate and containing. Obviously, the committee cannot give public proof of this, but perhaps the word of one former member will help to show that the loss of a good record by an accident in group psychology has been very rare. Observers should remember, too, that from the start the committee has properly excluded divine pronouncement from its lot.



Nevertheless, it may still be argued that some problems of identification are beyond the committee, and that one man, one vote is a poor rule when expert knowledge is an absolute prerequisite in every case and when 'the best man on X or Y' may be absent from the committee's ranks. Should the committee and its procedures be reconstituted to allow for such factors of importance? Again, a no. Recognition of the above and similar weaknesses has caused the committee to increase its circle of advisors (particularly to include those who know rarities as common birds), to canvass direct help from observers studying particular species or groups and generally to prevent any feeling that a closed shop in diagnosis existed.

Occasionally criticism has been voiced of the committee's profile, mainly in terms of the relevance of individual members' experience and identification skill to the tasks at hand. There is an element of validity in such criticism (given the speed of criteria development from the multiple experience of a rarity now so common), but most commonly it mistakes the needs of the committee which are broader than such personal slights imply. It is not enough to know the bird when judging its record: one must try to know the observer too and this means that the specification for committee membership has always been and may continue to be a mixture of experience in both birds and observers. This does not always come in one man and it is for this reason that ten men's sheer identification expertise was not considered sufficient to carry out the group task.

This said (or rather repeated since the matter has been explained before), however, it may be wise not to consider the current constitution of members' skill and knowledge (and its product of assessments) as the best for all time. Furthermore, it has now been agreed that one member shall retire, in order of seniority of service, at the end of each year (*Brit. Birds*, 62: 457). The rarity is an increasing and increasingly accessible phenomenon and considerable evolution of the committee's response to it could follow. Already a thin wedge of exceptions has been allowed. For a period the committee accepted automatically records from Fair Isle of Short-toed Larks, Richard's Pipits, Scarlet Rosefinches and Little Buntings, if the warden there was satisfied with their accuracy. Other exemptions from full submission included Lesser White-fronted Geese at Slimbridge and Pied-billed Grebes which reappeared at original localities. In the case of difficult or little known seabirds, the comment of anyone who knows them carries particular weight. General committees tend to fail as the need for specialisation increases and perhaps one day subcommittees will be charged with particular groups, such as the Nearctic waders of the genus *Calidris*.

Meanwhile, the best answers to the problems that exist lie with the originators of the records—more care, better notes, real evaluation before claim and, if need be, their own supporting research. This last

factor determined the final acceptance of two very difficult records from Kent in recent years, those of a Pallas's Sandgrouse (*Brit. Birds*, 60: 416-419) and a Royal Tern (*Brit. Birds*, 61: 559-561).

Finally, it must be recognised that no one is more troubled than a member of the committee by the fact that criteria for the diagnosis of many species have shifted considerably in the last ten years. While on the whole the general advance has aided the committee in its task, there have been species or groups in which ground has been lost, at least for a time, such as Cory's Shearwater, *Hippolais* warblers and Great Snipe. It would be extremely interesting to provide a control of some of the committee's early responses to records of such species by blind-testing a sample of both acceptances and rejections in current circumstances, particularly those where local opinion has differed from that of the committee. The files are there!

(3) *'To bring together all the well-authenticated records in one place so that the general picture emerges'*

This aim has now been achieved with regard to most individual species, but not as quickly or as consistently as was hoped. A high target was set for the informative quality of the report, but the committee's score has been variable. In the systematic list in the first report, about 17% of the column inches of print were devoted to explanatory comment and background. Four reports later, only 1% of space was devoted to such comment and that consisted mainly of repeated escape caveats. Thus it is clear that the committee lost track of this important aim almost completely in the first five years.

Fortunately, certain members objected forcibly to this breakdown in function and, following an excellent lead given by I. J. Ferguson-Lees in 1964, the situation was righted. Since then, the comments on species have been provided by a report commentator with help from the honorary secretary and I.J.F.-L. The main role was mine for the 1965 to 1967 reports and was again filled for 1968 by I.J.F.-L. with the assistance of Dr J. T. R. Sharrock\*. Currently, 35-40% of the column inches is given to interpretative comments. The form of these comments should be well known by now, but, briefly, they include a summary of the bird's normal breeding range and the total number of British and Irish occurrences (with occasional analysis of seasonal patterns), and less often comparison with the records of other species (particularly where a common origin is indicated) and a note of any unusual or unprecedented factors. Though no readership survey exists to prove it, they appear to be much welcomed by most observers. Above all, their content shows increasingly how invalid were the early suggestions that the systematic recording of rarities was pointless. The

\*The species comments in the report for 1969, to be published shortly, have been written by D. G. Bell and A. R. M. Blake.

'new and clearer appreciation' of the occurrences of rarities hinted at in 1960 begins to appear, though as yet no 'general picture' of any year has been painted. Who, incidentally, should hold the brush? Not so long ago, the Migration Research Officer of the B.T.O. might have, but now it looks as if the committee must co-opt for this purpose.

One activity linked to the report calls for comment and that is the intended publication in full in this journal of occurrences of species which have been recorded not more than ten times in total or not at all during the last 25 years. Such treatment has sadly been less than automatic in recent years and, as each individual record in this category may contain more of value than the entire text or guide notes in *The Handbook*, it is to be hoped that the gaps may shortly be filled and no other delays allowed to occur. Along with the newly introduced and welcome photographs of actual rarities, they form an essential part of the whole.

(4) *To pass on to observers the knowledge gained from its work in the form of 'a thorough reappraisal of the identification criteria' of particular groups*

For a time the footnote 'A publication of the Rarities Committee' looked set fair to signal a series of important identification papers. Sadly, however, the momentum set up by Kenneth Williamson's threshold-crossing examination of the plumages of the marsh terns (*Brit. Birds*, 53: 243-252) has been lost and no directly sponsored work has appeared. It is true that both D. D. Harber on Tawny and Richard's Pipits (*Brit. Birds*, 57: 211-213) and I on *Hippolais* warblers (*Brit. Birds*, 57: 282-301) and dowitchers (*Brit. Birds*, 61: 366-372) used the central files to support our own personal researches, but, in general, it is a pity that a brilliant start was not sustained. Nor is it sufficient excuse to say again how busy members are, how scarce their labour and so on. The wealth of criteria and acute discussion in the committee's files *must* be used. Three members' memory of them contributed much to the latest revision of the *Field Guide*. Provided that confidence limits are set, I would suggest that direct access is granted to *bona fide* ornithologists willing to produce further papers of the type exemplified above.

(5) *Miscellaneous aspects*

A number of other points on the outcome of the committee's functions do not fit neatly into any of the above sections, but two do deserve mention. Any discussion of the escape problem is premature since, as mentioned in the 1967 report, M. D. England has in hand a complete review, but it must be stated that this increasing bogey vexes the committee more than any other. The members have tried to keep a clear head on the subject and it is now clearly indicated by specific comment (and not by vague square brackets) where a record is sullied. Perhaps in due course the statistician can help us here. One hopes so.





PLATE 16. Merlin *Falco tinnunculus* at nest, Breconshire, June 1968. H. McVean.  
(pages 111-112)





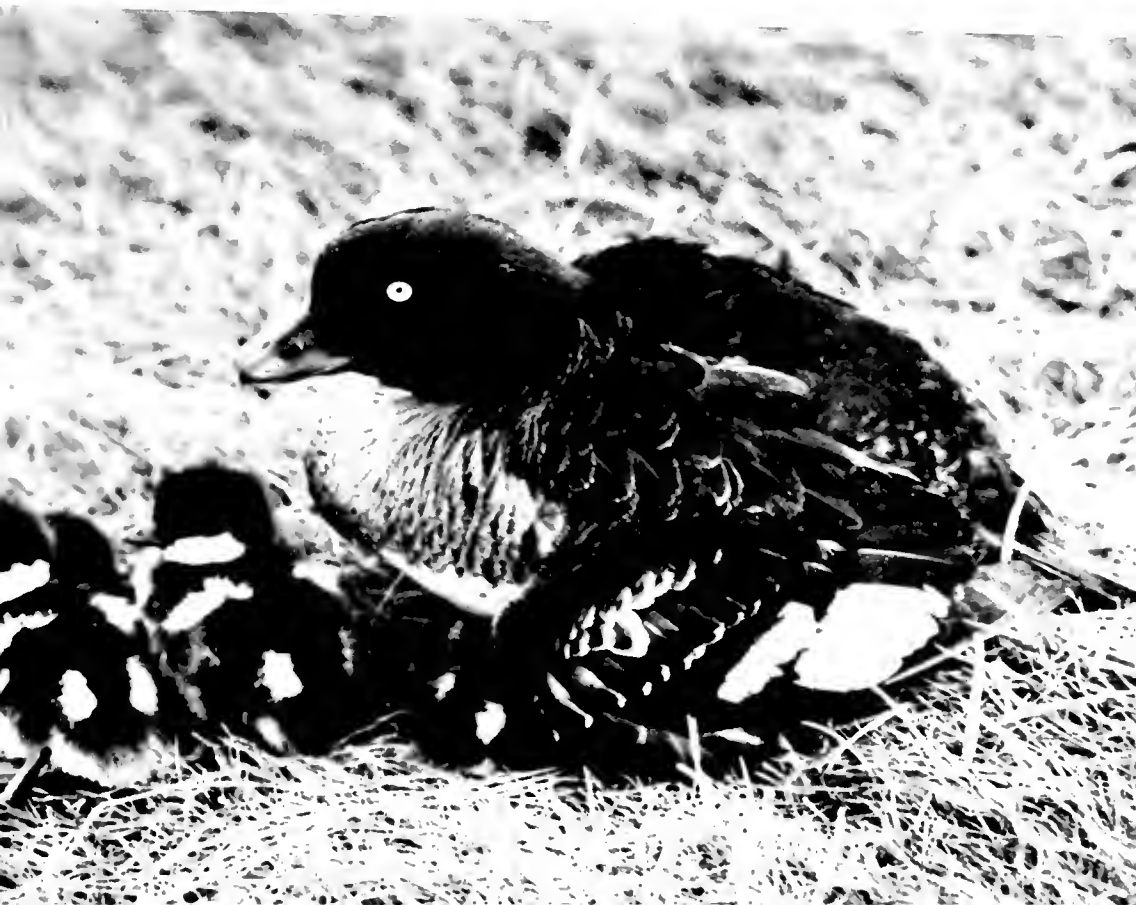
PLATE 17. Black-eared Wheatear *Oenanthe hispanica*, Portugal, June 1969 (R. G. Carlson)  
Below, Grasshopper Warbler *Locustella naevia*, Surrey, June 1969 (Frank T. Blackburn)







PLATE 18. Turtle Dove *Streptopelia turtur*, Shropshire, June 1955. D. N. DAVENPORT. Below, family of Barrow's Goldeneye *Branta (Lopho) leucorhynchos*, Iceland, July 1955. PETER HARRISON.



PLATES 19 and 20. Below, Little Owl *Nyctale noctua*, Glamorgan, June 1969 (Harold L. Grantell). Upper right, Starlings *Sternus vulgaris*, Hertford, January 1968 (D. L. Terry). Lower right, Brent Geese *Branta bernicla*, Norfolk, January 1969 (H. L. Henze)









PLATE 21. Oystercatcher *Haematopus ostralegus*, Ayrshire, May 1969 (*Sidney J. Clarke*)  
 Below, group of Black Guillemots *Cepphus grylle*, Orkney, May 1969 (*Arthur Gilpin*)





PLATE 22. Winter adult Little Gull *Larus minutus*, Cornwall, March 1969 (J. B. and A. Bottomley). Below, Little Terns *Sterna albinus*, Cumberland, June 1960 (P. J. Markes).





PLATE 23. Curlew Sandpiper *Calidris ferruginea*, Middlesex, September 1969 (J. A. W. Jones). Below, Ruff *Philomachus pugnax*, Norfolk, September 1969 (R. J. C. Blomitt)





Next, there is the problem that derives from what for certain observers amounts to the sheer tedium of writing descriptions for birds that have become to them instantly recognisable. The best current example of a species such as this is Richard's Pipit. Initially the committee took a fairly hard line on brief descriptions, but nowadays it recognises multiple personal experience. The comment 'Accept from this observer' is not uncommon, but a fairly long apprenticeship is still (properly) required for the implied accolade.

Finally, I must note once again the unfortunate continuance of separate assessment of all Irish rarities and re-express the hope that soon these may again take their rightful place in the data sections of the reports and not feature only in the explanatory comments.

#### INFORMATION DERIVING FROM THE COMMITTEE'S FUNCTION

Ten years' work has amassed a considerable amount of information on the universe of rarities and those who see them, their product in combination (records) and so on. The following sections briefly indicate some of the more interesting findings provided by general or random analysis.

##### *(1) Total number of designated rarities*

Since 1958 over 225 species have been designated as rare by the committee. This figure is made up of all species which before that year were thought to occur less than ten times annually in Britain and Ireland, together with the additions to the British List which in the decade under review have continued at a rate of about three per year. It is interesting to note that the 215 species currently designated as rare represent no less than 45% of the British List, a greater share than that of breeding species which make up only 42% of the total. In the greater mass of Continental Europe (excluding Russia), breeding species represent over 70% of the total and, although the comparison is severe, it does highlight the fact that rarities hold a unique position in British ornithology which they will probably never lose. The need for a disciplined and intelligent response to their occurrence is underlined once more.

##### *(2) Rarity categories*

These have always been visible to an extent, but it is now possible to see a growing and basic divide within the 215 species called rare. About 100—for example, Frigate Petrel, Glossy Ibis and Rufous Turtle Dove—remain very rare or are becoming increasingly so. The other 100 are not so rare or are becoming at least regularly observed. It is difficult to evaluate precisely what the increase in both temporal and geographical observation contributes to this divide, but, even so, it is possible to see in the ten-year record now established the shadow of substantial population trends or distribution shifts noted elsewhere in



the world. More and more interconnecting facts appear and the scientific validity of our so-called obsession grows.

We now see much clearer meanings of oft-confused terms, such as 'accidentals' (e.g. Houbara Bustard) and 'vagrants' (e.g. Caspian Tern). We begin to divide 'over-shooting species' (e.g. Woodchat Shrike) from 'fore-runners' (e.g. Serin). We have become unhappy about the previous definitions of the status of 'skulking species' (e.g. Great Snipe). We now accept the annual occurrence of 'ship-assisted migrants' (e.g. Baltimore Oriole).

### (3) Total number of rarity records during 1958-67

The committee's arithmetic is somewhat suspect in terms of final annual sums of submissions and acceptances (to count birds or records is a constant dilemma). It appears, however, that in the first ten years it received a maximum of about 3,960 records, of which about 3,050 (or 78%) had been accepted by the date of the 1967 report. It is more realistic, however, to look at the two five-year periods involved (table 2). This is because the number and status of the species differed markedly as a result of the deletions in 1963 (after the first five years) and the product of work from those deleted was much higher than the average (7.5% of the species contributing 37.5% of all the records in 1962).

The figures in table 2 largely speak for themselves, but it should be noted that they imply that the improvement in standards shown by increasing acceptance rates (commented on in recent annual reports) had, in fact, begun within one year of the committee's birth. The comparatively poor result in the fifth year (1962) is mystifying and, even allowing for the change in the list of species from 1963 onwards, the

**Table 2. Totals and percentages of acceptances of rarities reported during 1958-67 and the year of publication**

The average number of species on the Rarities Committee's list was about 215 during 1958-62, but had dropped to about 200 during 1963-67 after 16 species which contributed a large proportion of the records had been removed from the list: the two five-year periods are therefore best considered separately. All figures in brackets are approximate

	YEAR OF OCCURRENCE					YEAR OF OCCURRENCE				
	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
YEAR OF PUBLICATION										
1960	(290)	(325)				1964	(170)			
1961	7	19	(395)			1965	5	(195)		
1962		3	(30)	(385)		1966	4	10	221	
1963				8	(280)	1967		3	22	(270)
1964	1				18	1968	1	1	4	(20) (395)
1965						1969		1		(15)
1966	1			1	1					
TOTALS	(300)	(345)	(425)	(395)	(300)		(180)	(210)	(247)	(290) (410)
% ACCEPTED	73%	79%	80%	81%	71%		68%	73%	72%	74% 82%

lag-phase between 1964 and 1966 is also surprising. It seems that the editorial on sight records (*Brit. Birds*, 55: 557-560) and the use of the 'Unusual Record' form (*Brit. Birds*, 58: 228-229) took more time to lift already reasonable standards than the *fundamental* changes caused by the original controls. Businessmen will recognise the symptoms!

Since 1963 an average of 75 species have featured in submissions, of which about 70 have successfully graduated to the annual report. In passing, it may be noted that this means that a third or so of all the 'rare' species occur annually.

#### (4) *The number of observers seeing rarities*

Without resort to the original observers of all records, it is impossible to define the total number of rarity-observer contacts in any year, but taking 1965 as 'normal' (i.e. lacking any exceptional irruption of one species), a minimal breakdown is shown in table 3. In reality, the number of contacts in 1965 must have been higher. The committee frequently learns of observers who have seen but not reported birds found by others and the true total of contacts in 1965 was at least 700, probably 1,000 and perhaps 1,200. It is certain that these figures have since been completely eclipsed in subsequent years.

In passing, the high incidence of single observer records in 1965 may be noted. A glance at any of the ten reports will show that this is not exceptional. It is, of course, a considerable vote of confidence in British observers that the rule of at least one supporting report has passed away.

#### (5) *Types of rarity observer*

One of the fascinating outcomes of the ten years' work is our growing appreciation of the types of observers who see rarities and the systems that they use to do so. It is difficult to classify them precisely, but, in roughly ascending order of productivity, we now recognise the purely chance observer, the locality regulars (now recognising that 'time in' eventually equals 'rarity out'), the ringers (particularly when working in groups), the occasional tally-hunter (most of us, if we are

**Table 3. Numbers of observers involved in the records in 1965 (according to the report) and the minimum totals of rarity-observer contacts**

Number of observers involved in record	Records published	% of all records	Total contacts
1	77	31%	77
2	36	15%	72
3	38	15%	114
Over 3	96	39%	384 +
TOTALS	247	100%	647 +

honest), the full-time observatory workers (exhibiting the highest standards of discipline) and the growing group of full-blooded rarity collectors (self-styled 'twitchers', covering individually up to 30,000 miles in their annual pursuit of 'lifers'). Given the continual risk of over-eager claims that pure collecting carries with it, members of the last group have caused the committee alarm over a number of years. There are, however, clear signs now that they are becoming their own fiercest critics on identification and other disciplines and it is to be hoped that they will increasingly recognise their responsibility to both national *and local* recording practices.

(6) *The degree of difficulty or ease in rarity identification*

Just as the committee has learnt to recognise a classification of rarities and observers, it has also become acquainted with a wide scale of difficulty or ease in rarity identifications. In order to demonstrate this, a table was presented to the conference of local editors at Swanwick in 1967 and it is repeated here (table 4). By weighting the placements on a six-point scale, it is possible to calculate that the degree of average difficulty of identification in the case of a rarity is 3.47, compared with 3.05 in the case of a common (or is it better known?) bird. This is perhaps a less than expected difference and only serves to remind us all that bird identification is a very testing exercise in general. I should make it clear that the degrees of difficulty shown above are derived from my own personal assessments, but I doubt whether a larger sample would seriously alter the conclusion drawn.

(7) *Rates of rejection for individual species or groups*

Following on from the last section, it is important to recognise those species which it is 'most difficult to have accepted' (I re-express the previous heading in this way, as it most frequently takes this form in enquiries from observers). In fact, only since 1966 has the annual report given precise data relevant to the demonstration of rejection rates, but table 5 indicates many of the common problems and it is

Table 4. Assessed degrees of difficulty of identification of the 200 species on the Rarities Committee's list compared with a random selection of 100 common British birds

Scale	Degree of difficulty or ease	% placement of 200 rarities	% placement of 100 common birds
6	Almost impossible	2%	2%
5	Extremely difficult	17%	4%
4	Difficult	28%	24%
3	Needing care	35%	42%
2	Fairly simple	15%	23%
1	Very easy	3%	5%

Table 5. Rejection rates of certain individual species or groups of species during 1965-67

Rejection rate	Explanatory comments	Specific examples	Confusion species
100%	Many single records of extreme rarities come into this category. Analysis is pointless, details being available in the 1965-67 reports. Four examples are given, however, of birds that failed at least twice in those years	Madeiran Petrel Frigate-birds Slender-billed Gull Red-tailed Shrike	Any small petrel Gannet (immature) Black-headed Gull (immature or winter) Red-backed Shrike (immature)
34-70%	Nine specific or group examples are given <i>in descending order of individual rejection rate</i> . Those with asterisks are some of the most troublesome, all having common confusion species. Note also the pratincoles, albatrosses and, particularly, Alpine Swift: these are all apt to be considered simple to identify, but insufficient detail, wishful thinking and poor criteria dog them still	*Bonaparte's Gull Pratincoles *Great Snipe Small crakes  Lesser Yellowlegs *Broad-billed Sandpiper Albatrosses  Alpine Swift Whiskered Tern	Black-headed Gull  Snipe Water Rail (especially voice)  Dunlin (sick, winter or immature) Gannet or Great Black-backed Gull  <i>Chlidonias</i> and <i>Sterna</i> terns (immature or winter)
25-33%	Twelve specific or group examples are given <i>in systematic order</i> . Those with asterisks are again troublesome and three are subject to uncertain systematic treatment. Nevertheless, the committee perseveres with them in the hope that more valid diagnosis can be found	*White-billed Diver  *Cory's Shearwater Gyr Falcon Red-footed Falcon *Dowitchers White-winged Black Tern *Gull-billed Tern Red-rumped Swallow Great Reed Warbler Greenish Warbler  Red-throated Pipit *Little Bunting	Great Northern Diver (winter)  Peregrine Kestrel (immature or ♀)  Sandwich Tern  'Northern' Chiffchaff (showing wing-bar)  Reed Bunting (runt immature)
14-24%	Twelve specific examples are given <i>in systematic order</i> . Those with asterisks have all attracted considerable case histories. Note particularly such apparently obvious birds as Purple Heron and Snowy Owl	Purple Heron Little Bittern Crane *Baird's Sandpiper *Wilson's Phalarope Caspian Tern Snowy Owl Aquatic Warbler  *Richard's Pipit *Tawny Pipit *Lesser Grey Shrike *Serin	Grey Heron (immature)  Grey Heron  Lesser Yellowlegs  Barn Owl or Gyr Falcon Sedge Warbler (immature) Tawny Pipit Richard's Pipit



hoped that the information it contains will elucidate some of the committee's reasons for rejection. I have shown confusion species purposely, since it appears that observers still do not pay enough attention to the pitfalls provided by many common species in immature plumage. One is wary of the Gannet above all!

(8) *The geography of accepted records*

An analysis carried out on the 1964 and 1965 annual reports indicated that Shetland (especially Fair Isle) and the Isles of Scilly (especially St Agnes) were the most productive areas in Britain for rarities, together being responsible for 23% of all accepted records in those years. The annual crop (the term is relevant) and moving averages over the four years 1964-67 show considerable growth:

	1964	1965	1966	1967
Shetland	26	40(33)	47(38)	57(43)
Scilly	14	24(19)	24(21)	41(26)

I cannot comment on the rise in Shetland from experience, but the tremendous efforts of three regular observers based there for most of the period must have contributed to the improved yield. Similar exceptional searches and an extension of temporal cover are certainly factors in the Scilly situation. Whatever other causes there may be, it is quite possible that extraordinary human effort is responsible for two-thirds of the recent surge in records from our most south-westerly islands. The two island groups now contribute 25% of all accepted records. Before such trends in productivity are totally obscured by forgetfulness, it would be interesting at least to estimate them in other areas too.

Currently after these two island groups come the counties of Norfolk (Cley) and Yorkshire (Spurn) which have displaced Sussex (no one outstanding locality) from third to fifth position in rarity recording. Next are Cornwall (St Ives and now Porthgwarra) and Kent (Dungeness), and then Dorset (Portland Bill), Hampshire, Devon and Suffolk (Minsmere) in that order. Together these nine counties now contribute annually about 44% of all rarity records. All other counties or reporting areas share the remaining 31%. Only Northumberland and Essex show any crops approaching the major counties. From 30 to 35 counties average only one record per year.

It is unfortunate that one must conclude that the polarisation of the rarity records as outlined above will probably accelerate, due to the underlying behaviour of rarity observers.

(9) *The geography of rejected records*

This can be deduced from the recently introduced lists of rejections

**Table 6. Percentages rejected of total records submitted during 1965-67 from a selection of coastal counties which produce a large number of rarities annually**

	1965	1965-67	1967		1965	1965-67	1967
Shetland	0%	6%	8%	Cornwall	35%	22%	0%
Scilly	12%	9%	10%	Norfolk	26%	22%	17%
Yorkshire	13%	14%	3%	Suffolk	36%	24%	14%
Devon	14%	20%	8%	Sussex	27%	30%	26%
Dorset	31%	21%	14%	Kent	48%	38%	18%
Hampshire	18%	21%	22%				

incorporated into the report from 1965 onwards. The rejection rates for the years 1965-67 in the eleven coastal counties which produce the largest numbers of records annually are shown in table 6. It is not really the committee's part (nor mine) to investigate why there should be such a wide variation and it is urged that no-one should regard this information as a 'league table'. It should be noted that most of the records in Shetland and the Isles of Scilly are subject to close inspection by local experts before submission to the committee. This practice undoubtedly decreases rejection rates (and saves the committee work).

Further consideration of this matter is recommended to local editors or recorders. Over the ten years, the national average of rejections was worryingly high only in 1962 and it tumbled to below 20% in 1967. It is to be hoped that a further improvement can be made and that well respected and well organised county bodies will renew the all-important local initiative in this matter. The fact that observers have an inviolate right of direct submission to the committee is no reason for local supervision or observer training to be decreased. This is a function that no national body can ever supplant.

In the case of counties and areas making only small contributions to the national whole, the total rejection rate remains high at 45-50%. This will be harder to cure.

#### CONCLUSION

Who can now say that the formation of the Rarities Committee was not beneficial to British ornithology? If there be such a person, no doubt the correspondence section of this journal is open to him. For my part (and for several years I was a *Didymus*), I am convinced that it is playing a vital role of supervision and interpretation over a major part of the British List. Therefore, it deserves support (though not uncritical support) and always the special help that an honest, well-presented observation gives it.

The committee has caused no lasting harm to anybody and, in particular, the threat that its annual report was supposed to have posed to the sales of local and observatory publications (by creaming off the most interesting records) has proved empty. In many cases, indeed, it

has saved expensive space in these and advertised their wares in a national market. Always provided that it acquires energetic representatives from the new generations of observers, its future seems well assured. And may I hope that eventually the Records Committee of the British Ornithologists' Union will award it a final accolade by merging with it?

#### ACKNOWLEDGEMENTS

My grateful thanks are due to I. J. Ferguson-Lees and P. A. D. Hollom for encouraging me to act as spokesman for the Rarities Committee by producing this analysis and for constructive criticism when it was in draft. F. R. Smith likewise criticised it at this stage and I am also particularly indebted to him and the late D. D. Harber, the two honorary secretaries of the committee during the time of my membership, for much helpful discussion. Perhaps above all I must recognise the aid of my fellow members on the committee, with whom I much enjoyed working, and of the many observers who rarely lost an opportunity to pass on to me their views. These I have tried to express in a balanced way and, if I have succeeded, they may feel it all worthwhile. Finally, I must thank P. Archibong for his care and speed in typing a difficult manuscript.

#### SUMMARY

A review of the first ten years' operation of the Rarities Committee shows that: (a) the concept of national judgment and reporting of all rarity records is both sound and practical; (b) new standards in such records and their interpretation have been set and by the end of the period largely achieved; (c) the timing of the annual publication of records and particularly the initiation of special identification research has been rather erratic and requires better management; (d) even for ten rare men, the uniform assessment of rarity records is best regarded as a grail rather than a goal; (e) following from the last, the method of assessment may have to evolve through increased specialisation by committee members or co-opted advisors; (f) identification expertise is not the sole pre-requisite of committee membership, a wide circle of ornithological contacts also being vital; (g) any wholesale omission of interpretative comments, such as in 1962, greatly reduces the value of the end-product; (h) the annual report coincidentally produces information of considerable interest on the local standards and activity levels of British ornithology; (i) past destructive criticism of the committee was almost totally misplaced; and (j) constructive criticism and regular changes in membership should continue.

With regard to the workload of the committee, it is demonstrated that in the ten years it has caused about 105,000 activities or decisions to be taken concerning some 3,960 records submitted, of which about 3,050 were finally published. Such are the current efforts of observers that the workload is showing a second upsurge, but with increased efficiency it may still be possible to deal with this. The announcement and first three instalments of a ten-year survey of scarce migrants and commoner rarities are welcomed and an appeal is made for responsible record collecting by those who do little else.

In response to the wishes of local editors and recorders expressed at their conference at Swanwick, Derbyshire, in September 1967, a particular insight is given into the rate of rejections of difficult species and the underlying reasons. The survey ends with a vote of confidence in the Rarities Committee and prompts a final thought that the Records Committee of the British Ornithologists' Union is superfluous.

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## Appendix. Scientific names of species in the text and tables

Great Northern Diver <i>Gavia immer</i>	Black-headed Gull <i>L. ridibundus</i>
White-billed Diver <i>G. adamsii</i>	Sabine's Gull <i>L. sabini</i>
Pied-billed Grebe <i>Podilymbus podiceps</i>	White-winged Black Tern <i>Cblidonias leucopterus</i>
Albatrosses <i>Diomedea spp</i>	Whiskered Tern <i>C. hybrida</i>
Madeiran Petrel <i>Oceanodroma castro</i>	Gull-billed Tern <i>Gelochelidon nilotica</i>
Frigate Petrel <i>Pelagodroma marina</i>	Caspian Tern <i>Hydroprogne tschegrava</i>
Cory's Shearwater <i>Calonectris diomedea</i>	Royal Tern <i>Sterna maxima</i>
Frigate-birds <i>Fregata spp</i>	Sandwich Tern <i>S. sandvicensis</i>
Gannet <i>Sula bassana</i>	Pallas's Sandgrouse <i>Syrhaptes paradoxus</i>
Grey Heron <i>Ardea cinerea</i>	Rufous Turtle Dove <i>Streptopelia orientalis</i>
Purple Heron <i>Ardea purpurea</i>	Barn Owl <i>Tyto alba</i>
Little Bittern <i>Ixobrychus minutus</i>	Snowy Owl <i>Nyctea scandiaca</i>
Glossy Ibis <i>Plegadis falcinellus</i>	Alpine Swift <i>Apus melba</i>
Lesser White-fronted Goose <i>Anser erythropus</i>	Short-toed Lark <i>Calandrella cinerea</i>
Peregrine <i>Falco peregrinus</i>	Red-rumped Swallow <i>Hirundo daurica</i>
Gyr Falcon <i>F. rusticolus</i>	Great Reed Warbler <i>Acrocephalus arundinaceus</i>
Red-footed Falcon <i>F. vespertinus</i>	Sedge Warbler <i>A. schoenobaenus</i>
Kestrel <i>F. tinnunculus</i>	Aquatic Warbler <i>A. paludicola</i>
Crane <i>Grus grus</i>	Melodious Warbler <i>Hippolais polyglotta</i>
Water Rail <i>Rallus aquaticus</i>	Icterine Warbler <i>H. icterina</i>
Small crakes <i>Porzana spp</i>	Olivaceous Warbler <i>H. pallida</i>
Houbara Bustard <i>Chlamydotis undulata</i>	Greenish Warbler <i>Phylloscopus trochiloides</i>
Dowitchers <i>Limnodromus spp</i>	Chiffchaff <i>P. collybita</i>
Snipe <i>Gallinago gallinago</i>	Yellow-browed Warbler <i>P. inornatus</i>
Great Snipe <i>G. media</i>	Richard's Pipit <i>Anthus novaeseelandiae</i>
Lesser Yellowlegs <i>Tringa flavipes</i>	Tawny Pipit <i>A. campestris</i>
Least Sandpiper <i>Calidris minutilla</i>	Red-throated Pipit <i>A. cervinus</i>
Baird's Sandpiper <i>C. bairdii</i>	Lesser Grey Shrike <i>Lanius minor</i>
Pectoral Sandpiper <i>C. melanotos</i>	Woodchat Shrike <i>L. senator</i>
Dunlin <i>C. alpina</i>	Red-backed Shrike <i>L. collurio</i>
Broad-billed Sandpiper <i>Limicola falcinellus</i>	Red-tailed Shrike <i>L. collurio 'isabellinus'</i>
Wilson's Phalarope <i>Phalaropus tricolor</i>	Baltimore Oriole <i>Icterus galbula</i>
Pratincoles <i>Glareola spp</i>	Serin <i>Serinus serinus</i>
Great Black-backed Gull <i>Larus marinus</i>	Scarlet Rosefinch <i>Carpodacus erythrinus</i>
Slender-billed Gull <i>L. genei</i>	Little Bunting <i>Emberiza pusilla</i>
Mediterranean Gull <i>L. melanocephalus</i>	Reed Bunting <i>E. schoeniclus</i>
Bonaparte's Gull <i>L. philadelphia</i>	

## Notes

**Somersaulting behaviour of Canada Geese** On 1st February 1970 we were members of a party of more than 20 people who witnessed an extraordinary performance by about 200 Canada Geese *Branta canadensis* which we had watched coming down on Ellesmere, Shropshire. Immediately they touched the water they went into a series of plunging, diving and bathing routines. Part of the flock began up-



ending for five or ten seconds at a time, then indulging in vigorous head and body shaking and even more vigorous preening. Others were diving repeatedly, submerging with a graceful wriggle which took them down to some depth and surfacing about ten yards away. They, too, wound up the performance with vigorous shaking and preening.

By far the largest proportion of the Canada Geese, however, were indulging in an elaborate routine which none of us had ever seen before. By plunging their heads into the water and somersaulting forwards they would turn on their backs, with belly upwards and feet clawing the air. This position was deliberately maintained for some seconds when the birds, by simply rolling sideways, righted themselves without difficulty. Once again a flurry of body shaking and vigorous preening followed. The spectacle of 200 geese behaving in this way at a range of not more than 60 yards was naturally a tremendous thrill to all the observers, especially as almost all the birds were simultaneously in action. The performance was still continuing after 20 minutes when unfortunately we had to leave.

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Following a note in which two Canada Geese were described somersaulting (*Brit. Birds*, 56: 190-191), K. E. L. Simmons recorded his own observation of this behaviour by a family party and also put forward several possible interpretations (*Brit. Birds*, 58: 58-60); the present note, however, is remarkable for the number of geese involved and the duration of the behaviour. EDS.

**Somersaulting behaviour of Greenland White-fronted Geese** On 23rd December 1967 M. Bell and I were observing Greenland White-fronted Geese *Anser albifrons flavirostris* on the banks of Loch Ken, Kirkcudbright. Four or five geese entered the water and swam away from the bank. To our surprise one thrust its head and neck into the water and, using its wings and feet, threw itself over on to its back. It lay there floating with wings half spread for three or four seconds, then assumed its normal upright position by rolling over. At least three more geese followed suit and these antics continued for some time.

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Similar behaviour has been recorded in Grey Lag Geese *Anser anser* (*Brit. Birds*, 37: 158; 38: 97), Emperor Geese *A. canagicus* and Brent Geese *Branta bernicla* (*Brit. Birds*, 58: 384), Canada Geese *B. canadensis* (see above), Mute Swans *Cygnus olor* (*Brit. Birds*, 40: 185-186; 41: 25; 43: 303), Whooper Swans *C. cygnus* and Bewick's Swans *C. bewickii* (*Brit. Birds*, 58: 383-384). EDS

**Melanistic White-fronted Geese** In 1966 Dr James Harrison, Dr Jeffery Harrison and Michael Hudson (*Wildfowl Trust Ann. Rep.*, 18: 153-154) recorded an apparently melanistic goose among a flock of European White-fronted Geese *Anser albifrons albifrons* on the Thames marshes near High Halstow, Kent. They mentioned the occurrence of another in Belgium in March 1965 and two more in Cornwall in January 1967, speculating that the latter might have been the Kentish and Belgian birds. Actually, three melanistic White-fronts were seen in Cornwall during that winter (*Cornwall Bird Rep.*, 1967: 19).

Two similar birds were seen by R. J. Elvy, C. E. Wheeler, A. C. Wilkins and the author among a flock of about 750 White-fronted Geese on the Cooling Marshes near High Halstow on 18th January 1969. Both had the whole of the head, neck, upper-parts and under-parts, including the under tail-coverts, nearly uniform dark brown, and at a range of several hundred yards some black barring on the lower breast was just discernible through a  $\times 40$  telescope. The leg and bill colours appeared to be the same as those of the normally plumaged geese and both birds had white shields above the bill; this feature seemed to rule out the possibility of their having been oiled. Furthermore, they appeared fit and fed normally. They were not seen when the flock was examined subsequently on 8th March. During the following winter another similarly coloured White-fronted Goose was present in the same area on 17th and 24th January 1970. It resembled the previous two except for a somewhat restricted area of white under the tail and slightly greyish primaries. It also lacked a white shield and any trace of black barring on the breast, even when examined through binoculars from 50 yards; it was therefore presumed to be a juvenile.

**Table 1. Plumage characters of melanistic European White-fronted Geese**  
*Anser albifrons albifrons*

Year	Locality	Number	General colour	Under tail-coverts	Breast barring
1965	Belgium	1	brownish-black	white	no
1966	Kent	1	black	dark	no
1967	Cornwall	3	dark grey-brown	dark	no
1969	Kent	2	dark brown	dark	yes
1970	Kent	1	dark brown	white	no

Some plumage characters of these geese are summarised in table 1. It seems that at least six, and possibly eight, different individuals were involved. Harrison *et al.* suggested that the dark plumages were the result of genetically based melanism. The further occurrence of apparently different individuals supports this view and suggests that it may be a continuing trait among the population or populations wintering in southern England.

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**Possible display-flight of four Sparrowhawks** On 25th January 1970, in the Clyne Valley, near Swansea, Glamorgan, we observed what appeared to be a large bird of prey overhead. It was eventually identified as a Sparrowhawk *Accipiter nisus*, though for some time we considered it too large to be of this species mainly because of its unusual shape and mode of flight. The wings, which appeared rather long (the primaries curved slightly back and not spread), beat steadily at perhaps three beats per second, much slower than in normal flight; although the wing-strokes were deep, the wings were scarcely raised above body-level. The flight was a little jerky, reminiscent of a crow, and was presumably that described in *The Handbook* as 'tern-like'. The bird circled steadily with this slow wing-beat, gaining height, and began a few short glides with the tail closed; after a time it flew more directly, then it suddenly swooped upwards almost vertically with wings fully closed, twisted and half-rolled at the top of the climb and dived downwards again. Similar swooping and diving manoeuvres continued for several minutes. Meanwhile a second bird appeared, considerably smaller and so probably a male, and began to behave in the same way as the first. The swooping upwards and diving continued as a third, and then a fourth, came in to join the others with a similar slow circling flight, all four at a height of perhaps 250-300 feet above a sparsely wooded bracken-covered slope. Occasionally the dives were for as much as 50-75 feet, but usually their depth was estimated at about 10-15 feet, and the upward swoops of some ten feet. Apart from a few high-pitched calls, there was no evidence of any contact between the birds though they were all within less than 100 yards of each other. After a while they gradually dispersed in various directions.

We considered that this performance was a communal form of display-flight, but in *The Handbook* (3: 80-81) the display-flight is said to extend from mid-March to mid-May and to involve only one or two birds. Furthermore, the closed-winged upward shooting is apparently rarely seen. The early date might be explained by the fine, mild, calm weather at the time. R. A. HUME and P. L. GARVEY  
31 Lime Grove, Burntwood, Walsall, Staffordshire

It is difficult to say to what extent this behaviour was a form of display. Although soaring has been recorded in almost every month, and especially from January to March (see Hubert E. Pounds, *Brit. Birds*, 30: 186-188), the above incident includes a number of other features peculiar to display-flight as described in *The Handbook* (3: 80-81) and by J. Walpole-Bond (1938, *A History of Sussex Birds*, 2: 298) and Leslie Brown and Dean Amadon (1968, *Eagles, Hawks and Falcons of the World*, 2: 480). Even so, several normal features of the true display-flight were not seen and the incident remains open to several possible interpretations. EDS

**Persistent ground-feeding by Buzzards** During autumn 1968, near Sidmouth, Devon, I made a long series of daily observations of Buzzards *Buteo buteo* feeding on the ground. These and other recent observations of mine indicate that, at least locally and perhaps also seasonally, ground-feeding may play a much larger part in the feeding habits of the Buzzard than is generally realised.

A field of about seven acres had been newly sown with grass in early August; by mid-September the new grass was appearing thinly, and from that time on this field proved attractive to Buzzards. On the 21st there were three, and by the 27th the pattern of behaviour had apparently stabilised with four or five Buzzards well spaced out over the field for most of the day. The number seldom fell below two, except when mist and rain kept them away completely, and the maximum was seven on 4th and 7th October. Their feeding behaviour consisted of standing still, looking around and then clumsily walking or running a short distance to pick up in the bill small items of food which were immediately swallowed. None of this food could be identified, but frequent defaecations suggested ample supplies. The earliest Buzzards would usually arrive well before sunrise, often calling as they came overhead, and they frequently continued feeding until dusk before making off for the night. At no time did I see them pay any attention to the Woodpigeons *Columba palumbus* and Pheasants *Phasianus colchicus* which often fed near-by. By 18th November the field had apparently lost much of its attraction as a feeding ground, possibly because of the thickening of the grass cover or some seasonal reduction in the food supply, and subsequently it seldom held more than one Buzzard.

R. W. HAYMAN

*Penn Coombe, Sidbury, near Sidmouth, Devon*

**The function of Oystercatcher piping behaviour** The well-known piping displays of Oystercatchers *Haematopus ostralegus* have been described by R. Dirksen (1932, *J. Orn.*, 80: 427-521), J. S. Huxley and F. A. Montague (1925, *Ibis*, ser. 12, 1: 868-897) and G. F. Makkink (1942, *Ardea*, 31: 27-74), but their significance has not yet been satisfactorily analysed. Certain aspects of piping behaviour will now be considered in the light of results which I obtained during a study of Oystercatchers at Newburgh, Aberdeenshire, from October 1965 to September 1968. Observations were made to determine the types of events that stimulated and followed piping; wherever possible, I noted the apparent external cause and the consequence of the display. For instance, bird A arrived on the territory of bird B; B began piping; A fled from the territory. Observations were classified as follows: A's arrival on or near the territory of B; whether B responded by piping or otherwise; whether A was forced to leave or remained in B's territory. The results, based on a total of 337 observations of twelve



**Table 1. Response of territory owner B to intruder A**

$\chi^2=142.5$ ,  $p<0.001$ . The value of  $p$  indicates the probability that these results arose by chance: here the probability is less than one in a thousand. The phrase 'near territory' indicates that the intruder landed between 10 and 50 metres beyond the edge of the territory in question

	B piped	B did not pipe
A arrived in territory	101	14
A arrived near territory	2	85

**Table 2. Response of intruder A to piping by territory owner B**

$\chi^2=5.86$ ,  $p<0.05$  (see table 1 for interpretation)

	B piped	B did not pipe
A fled from territory	94	11
A remained in territory	22	8

breeding pairs, are summarised in tables 1 and 2. Territorial boundaries were determined by plotting on a large-scale map the locations of aggressive encounters (excluding piping) at the beginning of the breeding season.

When a strange Oystercatcher arrived on a territory, the owner would move slowly towards the intruder and assume the piping posture, often joined by its mate; they then piped incessantly until the intruder left. Piping was also elicited simply by the flight overhead of a strange Oystercatcher above the territory. From these observations I conclude that, in the breeding season, piping represents the main territorial response to intruders. On occasions territory owners drove off intruders by a simple chase flight, which was often associated with the 'butterfly flight' (Makkink), but piping was by far the commoner of the two methods. It was observed in 80% of the instances of territorial defence and was never seen to occur in any other circumstances during the breeding season. A similar interpretation was proposed by Hans Lind (1965, *Dansk Orn. Foren. Tidsskr.*, 59: 1-31), but previous authors have associated piping with a number of other factors. Huxley and Montague concluded that it occurred in 'all forms of strong emotional excitement except fear'. Makkink attempted a more detailed analysis, which forms a basis for the present discussion. He suggested that piping was 'caused by a special internal impulse' (page 31), that it 'enables the choosing of mates' and that, in the final analysis, 'the cause remains of a sexual nature' (page 34).

On no occasion did I observe piping to begin spontaneously, so I find Makkink's 'internal impulse' theory hard to accept. Whenever piping was elicited in a lone bird it was always caused by a strange Oystercatcher flying overhead above the territory, sometimes at con-

considerable heights. The association of piping with 'the sexual life' (Makkink, page 29) is acceptable only in so far as territorial defence is carried out solely by mature adult individuals. Piping is also unlikely to be related to pair-formation for a number of reasons, of which perhaps the most important is that Oystercatchers appear to arrive on their breeding territories already paired. Pairing could occur on the wintering grounds prior to migration or on the migration flight itself, but there are no observations to support these ideas. It is more probable that Oystercatchers remain faithful to their partners for many years. This could, in turn, result from fidelity to breeding territories; marked birds are known to return year after year to the same territories and, if both members of a pair retained this fidelity, then the pair would automatically remain together. Furthermore, I have never observed piping in any situation that could have led to pair-formation. The question remains—how do those Oystercatchers breeding for the first time find their mates? It is possible that piping may be of importance here, but no data are available on this aspect of behaviour.

The results of my observations suggest that piping is associated with the intrusion of strange birds into an occupied territory and in this respect is indeed 'stimulated by . . . the presence or activity of fellow-birds' (Makkink, page 31). A territory owner would pipe at an intruder (for example, the bird from an adjacent territory) and in many cases their respective partners would join in piping, thus forming one of the well-known piping parties. Further Oystercatchers would sometimes join the party, perhaps as a response to the potential threat to their own neighbouring territories. In this way a group of adjacent territory owners would join forces to drive off strangers from the vicinity. Aerial piping parties of more than four individuals can be explained on the same basis for, in the course of the action, the piping party might pass over a number of territories, which in itself would elicit piping from territory owners below.

Observations were also made during the winter months. Piping, although not seen frequently then, was evidently still aggressive in nature and possibly operated in the maintenance of an 'individual distance' whilst feeding (*cf.* P. J. Conder, 1949, *Ibis*, 91: 649-655).

A comparison of the piping posture with the typical feeding attitude reveals certain resemblances; the former can thus be considered as a ritualised displacement feeding action arising, originally, from the internal conflict between aggression and fear when a strange bird landed in the territory. At the present stage of the Oystercatcher's evolution, piping appears to be an aggressive response functioning almost exclusively in the defence of territorial space against intrusion from other Oystercatchers. Other avian species were simply chased from the vicinity.

P. B. HEPPELSTON

(College of Agriculture, Junction Road, Kirkwall, Orkney)

**Herring Gull entering window for food** The note by Christopher Felton (*Brit. Birds*, 62: 76) reminded me of an incident which occurred some twenty years ago, not seen by me personally but reported to me immediately by those who did. The department store where I work in Scarborough, Yorkshire, has a restaurant on the top floor and the kitchen windows are some 80 feet above the street. A Herring Gull *Larus argentatus* often came to these windows where it was given scraps by the kitchen staff. One hot day, the gull walked in through the open window, picked up a cod fillet and flew off with it, but it proved too heavy and was dropped on to the pavement, narrowly missing the passers-by. The staff stopped feeding the gulls, but still to this day they often come up to the restaurant windows and tap on the glass to the customers' amusement.

A. J. WALLIS

13 Raincliffe Avenue, Scarborough, Yorkshire

**Carrion Crows taking fish** On 21st May 1967 I watched a Carrion Crow *Corvus corone* standing at the edge of a grassy islet in the River Eden, Fife. It was looking intently into the fast-flowing shallows. Suddenly it plunged bill and head into the water and withdrew a fish three inches long. It dropped the struggling fish on the bank, secured a better grip, and then flew off with it. On 2nd June 1969 I noticed another Carrion Crow repeatedly catching fish in the same way from the River Rye near Malton, Yorkshire, along a ten-foot stretch where there were shallow rapids over a stony bed. During a five-minute period it caught three live fish about  $1\frac{1}{2}$  inches long, which it quickly swallowed head first on the spot. Exactly four weeks later, at the same place, I saw two Carrion Crows each catch and eat about ten small fish in half an hour.

D. L. ASPINALL

52 Towthorpe Road, Haxby, York

Most previous records have been of Carrion Crows snatching dead fish and, in a few cases, live ones from the surface in flight, but methods similar to the above have been described before (for example, in *Brit. Birds*, 44: 323). EDS

**Blue Tits and gulls feeding by artificial light** At 7 a.m. (about an hour before daylight) on 18th November 1969, at North Shields, Northumberland, I saw two Blue Tits *Parus caeruleus* feeding in a sycamore tree by the light of an adjacent street lamp. My work in a shipyard often entails working during the hours of darkness, and the riverside is brightly illuminated for yard personnel. I have noticed many Black-headed Gulls *Larus ridibundus* regularly feeding as late as 8 p.m. by this artificial light, and a colleague on night-work has seen them doing so throughout the night. Not far away, the window-ledges of an old brewery hold 90 or more nests of Kittiwakes *Rissa*

*tridactyla* from January to late summer; these birds are also very active during the hours of darkness, making use of this artificial light source.

It seems reasonable for birds which roost in the open, such as gulls, to become gradually accustomed to taking advantage of light provided by man, and small birds roosting in open hedgerows or gardens may be disturbed and activated by early morning traffic, but surely it is unusual for hole-roosting species, such as Blue Tits, to emerge from safety and expose themselves to danger and predators unless they are extremely short of food.

A. BLACKETT

71 *Balkwell Green, Balkwell Estate, North Shields, Northumberland*

**Blackbird and Song Thrush incubating eggs in same nest** In May 1969 Mrs D. Francis wrote to the British Trust for Ornithology about a Blackbird *Turdus merula* and a Song Thrush *T. philomelos* using the same nest at Upminster, Essex. As a result, L.A.B. contacted M.S.F., who lives in that area, and asked him to investigate. The following account is based on the latter's observations in conjunction with the account given by Mrs Francis.

The nest of a pair of Blackbirds in Mrs Francis's garden was destroyed by cats and so she put up some netting to protect another nest of this species not far away. Then the nest of a pair of Song Thrushes in a cypress was also destroyed by cats. In a short time the female Song Thrush had turned to the surviving Blackbird nest, which contained two eggs, and laid an egg of her own in it. Both the female Blackbird and the presumed female Song Thrush were seen incubating the eggs at different times, but much fighting occurred and the nest was unoccupied for long periods as a result. During the fighting this Song Thrush sustained a broken tail-feather, which made it easy to distinguish, and it was noted that it was this individual which did all the fighting with the female Blackbird. The other Song Thrush and the male Blackbird played only a passive part, although both visited the nest and were usually in the vicinity. Eventually the Song Thrush gained the upper hand; the Blackbirds left the garden and were thought to be building a new nest a little distance away. The Song Thrush completed her clutch, finally laying five eggs in addition to those laid by the Blackbird, and began to incubate. Unfortunately, however, she was killed soon afterwards by a cat.

M. S. FREEMAN and L. A. BATTEN

*to British Trust for Ornithology, Beech Grove, Tring, Hertfordshire*

**Two female Blackbirds sharing one nest** During May and June 1969, in our garden at Oldbury, Warley, Worcestershire, two female Blackbirds *Turdus merula* laid and incubated eggs in the same nest, only one male being involved. One female started to build the nest about 19th May and, when it was nearly finished, another female joined



her. At first, the original owner sometimes chased this newcomer away, but they soon settled down and both began laying. By 2nd June the nest contained nine eggs, which were incubated alternately by both females for about half an hour each; while one female was sitting, the other would patiently wait near the nest until her turn came. The male, who had behaved similarly towards them throughout this period, sometimes brought food for the incubating female, but never assisted in the incubation himself. After a few days one addled egg was ejected from the nest, and the rest started hatching about 11th June, but three days later the nest contained only two chicks of unequal size and all the others had disappeared. Although both females were seen to feed the young, the male took on the major part of this task, coming to the nest with worms every 15 to 20 minutes. While he was away one of the females remained by the nest, always leaving as he approached, and once or twice the females were seen to exchange this duty. During the evening of 15th June, unfortunately, the nest was unattended at the outbreak of a sudden severe storm; we saw one female rush back to it in the torrential rain, but both chicks were dead in the nest on the following day.

Some of the trees and bushes in the neighbouring gardens were cut down during May, and perhaps the second female's behaviour was caused by the destruction of her nest.

S. NEWLAND and B. NEWLAND

22 Kingsway, Oldbury, Warley, Worcestershire

**Nest-building movements by male Greenfinch** On 22nd May 1969 I saw a female Greenfinch *Carduelis chloris* repeatedly carrying material to a half-built nest in my garden at Brentry, Bristol. As usual, the male accompanied her back to the nest-site, perching near-by while the material was incorporated. On one occasion, however, as soon as he had landed on a bare branch near the nest, I watched him simulate these nest-building actions by making lateral sweeping movements of his bill and rotating his lowered breast. This behaviour, which lasted for about six seconds and was not repeated, was not synchronised with the female's actions as the nest was hidden from him by foliage. The male Greenfinch waited until the female flew and then went off with her.

A. P. RADFORD

2 Wyck Beck Road, Brentry, Bristol

Derek Goodwin comments that the male domestic Canary *Serinus canarius*, which takes the lead in nest-site selection, attracts the female to the site by performing these movements. In many other species in which the male does not assist in building the nest, he selects the site with similar actions which may, perhaps, be repeated during nest-building. EDS

## Reviews

**A Guide to Pheasants of the World.** By Philip Wayre. Paintings by J. C. Harrison. Country Life Books, Feltham, Middlesex, 1970. 176 pages; 31 colour and 2 black-and-white plates. 63s.

Apparently designed as a small but comprehensive guide, this book seems to have been unnecessarily inflated by its publishers into something more pretentious; the great margins, and the spaces around the illustrations, suggest that a modest work has become lost in a lavish layout. Since the author is the originator and director of the Pheasant Trust, it is not surprising that the book is both authoritative and up-to-date. There are brief introductory sections on the management, breeding and diseases of pheasants in captivity, based on the work of the Pheasant Trust, and appendices on British organisations concerned with pheasants, but the greater part of the book is devoted to the individual species. The term 'pheasants' is used here in its narrow sense for the larger Asiatic species of usually long-tailed game-birds, including the tragopans and peafowl. Males of all species are illustrated in colour and, allowing for the difficulties of depicting the elaborately patterned plumages and glossy feathers, almost all the illustrations are good. In view of the lavish use of space for these, however, it is regrettable that at least some typical females were not included as well.

The species are arranged systematically, each genus being introduced with sections on the appropriate diagnostic characters, distribution and general behaviour. The text for each species is concise: a short plumage description followed by information on the natural distribution, normal habitat and habits of the bird and, where appropriate, a summary of its status in captivity. A systematic checklist of all species and subspecies and their distribution is also given. The characters which define the subspecies are, however, only occasionally included in the main text and must limit the usefulness of the checklist. Although the increasing number of species kept by aviculturists may produce identification problems for British ornithologists, the only species likely to be encountered normally are the Common and Golden Pheasants, and possibly Lady Amherst's, all of which are now feral in Britain. Apparently, the widespread success of the Common Pheasant in Britain in recent times was probably due to the introduction of new, hardier, subspecies in the 18th and 19th centuries, with subsequent interbreeding. The author also suggests that the occurrence of the 'melanistic variant' results from the presence of genes of the Green Pheasant of Japan within this hybrid complex.

This is a useful book for the ornithologist, both as a handy work of reference and for its overall picture of variation within this group of closely related genera.

C. J. O. HARRISON

**The Mystery of Animal Migration.** By Matthieu Ricard, English translation by Peter J. Whitehead. Constable, London, 1969. 209 pages; 16 black-and-white plates; 46 maps and diagrams. 45s.

On the jacket of this book are depicted three species of mammals, three insects, two birds and a fish, but well over half the text is devoted to birds. (Of the many other animals mentioned, Mouse-eared Bats, lemmings, salmon, eels, tuna and locusts are among the few dealt with in any depth.) References to 'dormitories' rather than roosts, 'migrators' rather than migrants and 'hibernating' rather than wintering are evidence of too literal a translation from the French original. More seriously, the French 'Puffin d'Anglais' (Manx Shearwater) has actually become 'Puffin', leading to contradictory references on pages 94 and 100. The scientific names seem to have been added after translation; while none is given for 'whistling teal' on page 49, the text appears to refer to Wigeon and is largely incorrect. Some sentences (and even whole paragraphs) are obscure, but it is difficult to say whether this is the fault of the author or of the translator.

Factual errors are legion. In the short section on bird-ringing we are told that the right 'foot' is ringed, that swifts and martins are wing-tagged because their legs are too short to take rings, that Heligoland traps are for catching water-birds and that the wing-span is measured—no mention being made of wing-length. Radar observations are dismissed in five lines as providing 'a gross and purely quantitative estimate of movements within a range of five to ten miles'. The distributions given for several species (such as Sanderling, Curlew and Storm Petrel) are misleading. The author's views on population regulation in birds on page 193 are of some interest: he states that Garden Warblers cross the insect-rich parts of Angola to winter in the harsh Namib Desert because 'if garden warblers remained in Angola they would soon multiply and become too abundant for the resources whereas if nightjars did not follow the areas of greatest insect density they would soon die out'; perhaps he should be asked about chickens and eggs. The short bibliography includes publications up to 1968, but, curiously, the only reference to Dr G. V. T. Matthews's work is to a brief article published in 1948. The index, which is not exhaustive, contains some strange listings: for example, Kite, Redstart, Right Whale and Stork are indented under Blackbird.

R. M. Lockley's *Animal Migration* (1967) still fills the niche at which this book was so inaccurately aimed.

C. J. MEAD

## News and comment *Robert Hudson*

**Rockcliffe Marsh restrictions** Rockcliffe Marsh in Cumberland is one of the best goose marshes in Britain, though less well-known than those on the Scottish side of the Solway Firth. It is an important winter haunt of Pink-footed and Barnacle Geese

in particular, and increasingly so as new areas of sandbank are becoming vegetated; at times, the entire Solway population of Barnacles is present on this new area of marsh, despite the greater security of the Caerlaverock Reserve on the opposite shore. There are some sizable gulleries on Rockcliffe Marsh, where breeding waders include Dunlin. Unfortunately, this marsh suffers a good deal from disturbance, including illicit shooting, and also from egg-collecting (culinary rather than oological) during the nesting season. Thus it is good to learn from the Lake District Naturalists' Trust News Letter (no. 14) that the Trust has been able to negotiate with the owners (Castletown Estate) an agreement whereby the Trust will warden the marsh outside the shooting season and safeguard breeding birds, especially from grazing cattle; in winter, the shooting tenants remain responsible. The area will be managed for the Trust by Ralph Stokoe, assisted by W. R. Laidler and G. Horne. Permits must be obtained in advance from W. R. Laidler, 487 Durdar Road, Carlisle, Cumberland.

**Bird life in Shetland** *A Guide to Shetland Birds* is the title of a new booklet by Bobby Tulloch and Fred Hunter. This pleasantly written guide is a departure from the usual run of county bird publications in that fully half of the text consists of descriptive habitat essays. These are under island headings; all the larger islands of Shetland (including Fair Isle) are treated separately, save that Whalsay and the Out Skerries are grouped together, while the many small islets are treated collectively. These essays lay emphasis on breeding species, and the principal seabird colonies are indicated. The second half of this booklet consists of three systematic lists, entitled 'Shetland's breeding birds', 'Migrants', and 'Birds recorded in Shetland (excluding Fair Isle)'. The first of these is the most detailed, though even so each species is allotted generally four or five lines only; by oversight, the Merlin has been omitted. The more or less regular migrants are dealt with in the second, while the final list is of species names only and excludes those mentioned in the preceding lists. This well printed *Guide* is liberally illustrated with black-and-white photographs; there are 72 pages, for some reason unnumbered. It is published by the Shetland Times Ltd at ten shillings, a price well within reach of visitors to these fascinating islands.

**'Schedule 1' alterations** The First Schedule of the Protection of Birds Act 1954 lists the rare breeding species for which special penalties are laid down in cases of interference. The Home Secretary has the power to vary the First Schedule, and such an Order came into effect on 18th May. As a laudable piece of rationalisation, the Bustards, Roller and St Kilda Wren are deleted from Schedule 1, while eleven species are added. The Spotted Crake, Little Tern, Kingfisher and Woodlark are 'upgraded' because of their increasing scarcity; while Wood Sandpiper, Fieldfare, Redwing, Bluethroat, Savi's Warbler, Firecrest and Serin are now afforded maximum protection in view of recent (and in some cases regular) breeding records.

**Captive breeding by British birds** An earlier paragraph in 'News and comment' (March 1969) referred to notes in the *Occasional Publications* of the Association for the Study and Propagation of European Birds in Aviaries on the European species that have bred in captivity. This aspect is taken further in the latest *Occasional Publication* (no. 4), which lists all the 82 European bird species (excluding waterfowl) known to have bred in captivity in this country. Surprisingly, these include Bearded Tit, Treecreeper, Thrush Nightingale, Woodlark, Hoopoe, Roller, Avocet and Glossy Ibis, among others. In accordance with avicultural practice, emphasis is laid on first records, so that this latest list does not make clear which species are breeding regularly in captivity, as opposed to isolated successes. The compiler, C. J. O. Harrison, evidently realises this limitation, for he cautions that the inclusion of a species in his list ought not to be taken alone as justification for including it in pagebird shows; rare breeding records will not result in aviary-bred populations which by law are the only ones eligible for exhibition.



**Some Soviet attitudes to birds** A March press-release from the Novosti Information Service, Moscow, reports growing concern in the U.S.S.R. for the protection of birds. The spring hunting season for 'winter' game (chiefly waterfowl) was prohibited this year in Russia. June is traditionally a 'month of silence' in Ukraine forests, when disturbance by man is minimised for the early part of the bird breeding season. The Lithuanian Committee for the Protection of Nature has outlawed the killing of raptors, while in that republic some 200 man-made lakes are being created as natural sanctuaries for waterfowl to counterbalance marshland reclamation. It is good to know that our winter-visitors are being appreciated in summer, too!

**Editorship of 'Scottish Birds'** We learn that Andrew T. Macmillan wishes to resign from the editorship of *Scottish Birds* and has asked the Council of the Scottish Ornithologists' Club to find a successor by the end of 1970. *Scottish Birds* was started in autumn 1958; Andrew Macmillan was assistant editor to Professor M. F. M. Meiklejohn until 1962, when he became editor on Professor Meiklejohn's resignation. For eight years now he has edited this quarterly journal with considerable success and it is with great regret that the Club has received his resignation. The Council urgently requires an editor or editors, and is exploring the possibility of making some payment for the work and perhaps combining it with another natural history post. Residence within reach of Edinburgh is desirable, but not essential, and anyone interested should write to the Secretary, Scottish Ornithologists' Club, 21 Regent Terrace, Edinburgh EH1 7 5BT, who will be glad to provide further details.

*Opinions expressed in this feature are not necessarily those of the editors of British Birds*

## Recent reports *P. F. Bonham*

**These are largely unchecked reports, not authenticated records**

Apart from general comments on the spring migration, this summary covers all the non-passerines (except pigeons to wrynecks) during April 1970 and, unless otherwise stated, all dates refer to that month. The next summary will deal with the remainder of the more interesting reports in April, particularly the passerines.

### ARRIVAL OF SUMMER VISITORS

The cold weather of March continued well into April, with snow or sleet in many areas. On 11th a weak ridge of high pressure to the south resulted in the first noticeable arrivals of summer-visitors. There were only small influxes on 12th, 13th and 14th, but then, with a change from the seemingly endless northerlies to a warm south-westerly airstream produced by an anticyclone over Iberia, migrants arrived *en masse*. This was the first of two warm-weather systems in western Europe (the second during early May) that resulted in an astonishing influx of migrants and vagrants. By 22nd, however, cold changeable weather with north-westerly winds had returned, to persist almost until the end of the month.

Many migrants followed the same pattern: a few scattered records before 15th, then rapidly increasing numbers with large 'falls' during 17th-19th, followed by a sharp drop in passage before a minor increase during the last week of April. Among the more abundant were **Cuckoos** *Cuculus canorus* (recorded from 9th), **Swallows** *Hirundo rustica*, **House Martins** *Delichon urbica*, **Sand Martins** *Riparia riparia*, **Wheatears** *Oenanthe oenanthe*, **Redstarts** *Phoenicurus phoenicurus*, **Willow Warblers** *Phylloscopus trochilus*, **Chiffchaffs** *P. collybita*, **Tree Pipits** *Anthus trivialis* and **Yellow Wagtails** *Motacilla flava*. Others arriving in much smaller numbers, but with the same pattern, included **Common Sandpipers** *Tringa hypoleucos*, **Whimbrels**

*Numenius phaeopus* (recorded from 8th), **Little Terns** *Sterna albifrons* (from 11th), **Swifts** *Apus apus* and **Nightingales** *Luscinia megarhynchos* (both from 17th), **Grasshopper Warblers** *Locustella naevia*, **Reed Warblers** *Acrocephalus scirpaceus*, **Sedge Warblers** *A. schoenobaenus*, **Blackcaps** *Sylvia atricapilla*, **Garden Warblers** *S. borin* and **Whitethroats** *S. communis*. On the other hand, arrivals of **Garganey** *Anas querquedula*, **Little Ringed Plovers** *Charadrius dubius* and **Sandwich Terns** *Sterna sandvicensis* were apparently much more evenly distributed throughout the whole month.

#### AMERICAN VAGRANTS AND SEABIRDS

**As** in 1969, late March and early April produced several Nearctic ducks, those in April being a drake **Green-winged Teal** *Anas crecca carolinensis* at Northmavine (Shetland) on 5th, a **Ring-necked Duck** *Aythya collaris* near Reedham (Norfolk) on the same day (the second in Britain this year) and a drake **Blue-winged Teal** *Anas discors* at Sandwich Bay (Kent) on 14th. A **Lesser Yellowlegs** *Tringa flavipes* stayed at Frampton (Gloucestershire) from 2nd to 23rd, a **Dowitcher** *Limnodromus sp* was seen at North Ronaldsay on 4th, and a **Stilt Sandpiper** *Micropalama himantopus* was identified at Dornoch (Sutherland) on 18th; if accepted, the last will be the first spring record and the ninth in all. The **Franklin's Gull** *Larus pipixcan* at Farlington (Hampshire) and the **Bonaparte's Gull** *L. philadelphia* at St Ives (Cornwall) (*Brit. Birds*, 63: 47) both stayed throughout the month, and a **Sabine's Gull** *L. sabini* appeared at Copeland (Co. Down) on 10th.

A **Balearic Shearwater** *Puffinus puffinus mauretanicus* was identified at Copeland on 11th, and four **Cory's Shearwaters** *Calonectris diomedea* were seen off Portland (Dorset) on 18th.

#### HERONS, LITTLE BITTERNS AND SPOONBILLS

The most remarkable feature of the spring was an invasion of **Purple Herons** *Ardea purpurea*, **Little Egrets** *Egretta garzetta*, **Night Herons** *Nycticorax nycticorax* and **Little Bitterns** *Inobrychus minutus*. The first wave of records occurred about 17th April, many staying until a change to warmer weather about 3rd May, which was when the second wave occurred; from the distribution of the latter, however, at least some may have been April birds appearing in new localities. Both periods (especially the first, as noted previously) saw widespread influxes of many species, both common and rare, apparently caused by high-pressure weather systems over Iberia. This south-westerly origin is reflected in the pattern of occurrences. **Purple Herons**, for example, in spring usually appear in East Anglia and the south-east, but April reports for this year came from St Mary's (Isles of Scilly), Marazion (Cornwall), Lundy and the Taw Estuary (two) (Devon), Chew Valley Lake (Somerset), Langland Bay (Glamorgan) and Malltraeth (Anglesey). It is normal for **Little Egrets** to have a more westerly distribution than Purple Herons, but the total of at least eleven in April and about 20 in May is unprecedented (the annual average during 1958-69 being only seven): those reported in April were two at Portland and five at Lodmoor (Dorset), between three and eight in Cornwall and one at Ballycotton (Co. Cork).

Still in the west, two, perhaps three, **Night Herons** were seen on St Mary's and one reached Bardsey (Caernarvonshire), one was picked up in a state of exhaustion or shock at Fort Doyle (Guernsey) and another was found dead near St Austell (Cornwall). The south-westerly pattern was perhaps most marked in the case of the **Little Bitterns**; the majority usually occur in the south-east, although it is interesting to note that about half of the last extensive spring influx (in 1964) was in southern Ireland and the south-west. April reports, all singles, came from the Marais (Guernsey), Slapton and North Huish (Devon), the Falmouth and St Austell areas (Cornwall), Eastbrook, near Dinas Powis, and Eglwys Nunydd Reservoir (both Glamorgan) and Milford Haven (Pembrokeshire). Most were in an exhausted

condition: the St Just bird was found dead and the Eastbrook one was captured by hand and fed for two days until it, too, died. **Spoonbills** *Platalea leucorodia* usually reach us from the Netherlands rather than from the south, and significantly the only April occurrences were singles, both in Suffolk, at Minsmere from 24th to 28th and at Havergate on 26th and 27th.

#### RAPTORS AND CRAKES

The Suffolk **Rough-legged Buzzard** *Buteo lagopus* stayed at Minsmere until 14th, while other winter species on the move during this period included a **Gyr Falcon** *Falco rusticolus* on Whalsay (Shetland) on 8th. A **Goshawk** *Accipiter gentilis* was seen at Anderby Creek (Lincolnshire) on 11th. Single **Ospreys** *Pandion haliaetus* appeared in Sussex, Suffolk, Norfolk, Worcestershire, Warwickshire, Nottinghamshire and Lancashire, as well as the resident pair and one or two others in the Loch Garten area (Inverness-shire) and more elsewhere in Scotland. A **Black Kite** *Milvus migrans* came in from the sea at Beachy Head (Sussex) on 12th, coasting west, and what may well have been the same bird was seen over Weymouth (Dorset) on 14th, while a **Red Kite** *M. milvus* over Ravenstone Woods (Northamptonshire) on 26th seems much more likely to have been an escape. **Hobbies** *Falco subbuteo* were reported from Ansty (Sussex) on 9th, Beddington (Surrey) on 16th and Sundridge (Kent) on 18th and 24th (all singles) and the sole observation of **Montagu's Harrier** *Circus pygargus* came from East Anglia on 26th.

It was a poor month for crakes with just two **Spotted Crakes** *Porzana porzana*, both on the Ouse Washes (Norfolk/Cambridgeshire), and a few **Corncrakes** *Crex crex*.

#### WADERS

**Kentish Plovers** *Charadrius alexandrinus* appeared at Rainham (Essex), Slimbridge (Gloucestershire), Sandwich Bay and Havergate. Single **Wood Sandpipers** *Tringa glareola* were seen at Minsmere on 25th and at Linton/Cresswell (Northumberland) on 30th, while the only record of **Little Stints** *Calidris minuta* came from the Outer Hebrides: two at Balranald (North Uist) on 19th. There were more than 50 nests of **Avocets** *Recurvirostra avosetta* at Havergate, and about ten at Minsmere, by the end of April; stragglers occurred at Steart (Somerset) (two), Arne (Dorset) and Gibraltar Point (Lincolnshire). A **Stone Curlew** *Burbinus oediconemus* arrived from the east at Minsmere on 16th, one flew north-east over Cliffe (Kent) on 18th and pairs were reappearing in their East Anglian breeding areas by the end of the month.

#### GULLS AND TERNS

About ten **Glaucous Gulls** *Larus hyperboreus* and a similar number of **Iceland Gulls** *L. glaucoides* were seen in the Midlands and on the east coast, and some 40 **Little Gulls** *L. minutus* were widely distributed in the east, south and west, almost all on the coast. The only April reports of **Mediterranean Gulls** *L. melanocephalus* away from the south coast, however, were from Minsmere (an adult on 15th and a first-year bird on 24th) and Havergate (one on 30th).

One of the rarer southern vagrants arriving with the main influx was a **Whiskered Tern** *Chilodactylus hybrida* at Topsham Ferry, on the River Exe (Devon), from 19th to 24th; there are extremely few April records and this appears to be the earliest ever. Two **Black Terns** *C. niger* at Beeston Weir (Nottinghamshire) on 13th and one at Cheddar Reservoir (Somerset) on 17th were also exceptionally early; no others were reported for April. The first **Common Tern** *Sterna hirundo* was reported from Cliffe on 10th, but on the following day 194 **Common or Arctic Terns** *S. paradisaea* were counted at Dungeness (Kent); Arctic Terns were identified at various places, the earliest (one on 11th) and the maximum (15 on 25th) again at Dungeness.

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# British Birds

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# *British Birds*

## Four American passerines new to the British and Irish list

Until the 1950's most authors of reference books on birds in Britain and Ireland, including *The Handbook* (1938-41), found it impossible to believe that small American land-birds could cross the Atlantic unaided. Then interest was aroused by occurrences in 1951 and 1952 and, at the suggestion of the editors of *British Birds*, Alexander and Fitter (1955) analysed all 103 records of American land-birds in Europe up to the end of 1953. They showed that a pronounced peak had occurred in September and October, and a much smaller one in April and May. This uneven distribution, concentrated in the migration seasons, indicated that a majority of the records were likely to relate to genuine vagrants, and unlikely to be of captive origin. Alexander and Fitter considered, too, that only seed-eaters could get sufficient nourishment to survive a week on board ship and, like Williamson (1954), they concluded that most or all of the many other species had probably crossed the Atlantic unaided.

Durand (1963) showed, however, that insectivorous birds were capable of survival on board ship, though seed-eaters generally fared much better. Of the 130 or more land-birds which came on board R.M.S. *Mauretania* in October 1962, about half were buntings (Emberizidae)—generally called 'sparrows' in North America. Off south-west Ireland five days later, only nine birds were still in a free-flying state and seven of those were buntings.

Nisbet (1963) went a stage further, showing spring and autumn peaks for the 27 passerines recorded between 1951 and 1962, the spring peak consisting largely of short-distance migrants such as buntings (though his sample was very small) and the much greater autumn peak mainly of long-distance migrants such as wood warblers (Parulidae). The pre-1951 records also fell into this pattern, especially if the many 19th century American blackbirds (Icteridae) and other



short-distance migrants—found mostly nowhere near the Atlantic seaboard—are considered to have been escaped cage birds. For a number of reasons, Nisbet concluded that most of the recent short-distance migrants, particularly buntings, had arrived partly or wholly by ship, but that the autumn peak was probably due to unaided crossings in exceptional weather conditions.

Since 1962 at least 50 more American passerines have been recorded in Britain and Ireland, and the general pattern of species and dates remains unchanged; the peaks are, in fact, even more pronounced now than before. Figs 1, 2 and 3 each cover the period 1951-68. Fig. 1

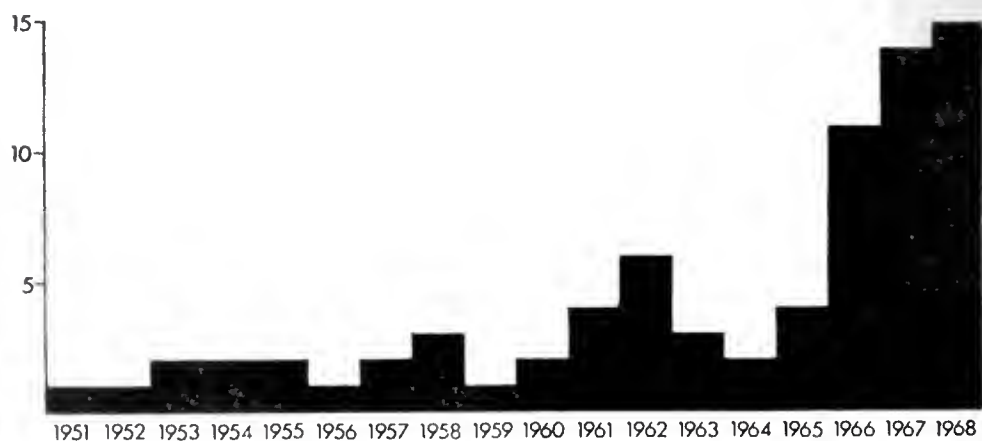


Fig. 1. Annual totals of American passerines in Britain and Ireland, 1951-68

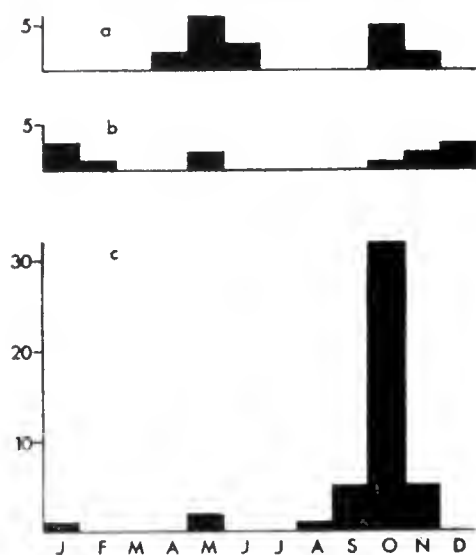


Fig. 2. Monthly totals of American passerines in Britain and Ireland, 1951-68:

- (a) grosbeaks, finches and buntings,  
 (b) American Robins *Turdus migratorius*,  
 (c) all others

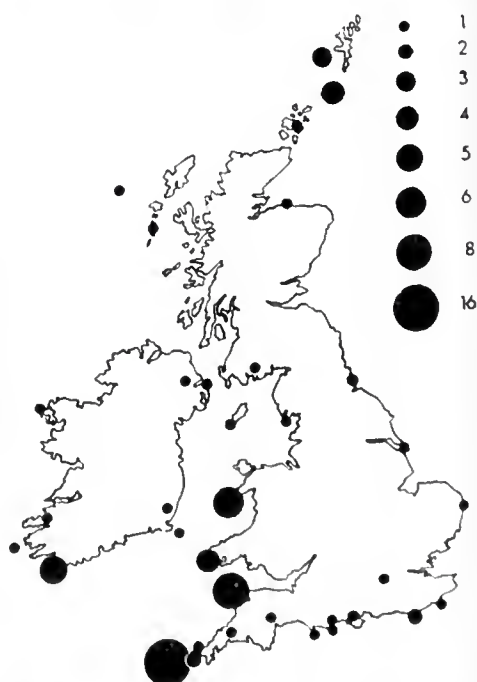


Fig. 3. Geographical distribution of American passerines in Britain and Ireland, 1951-68

shows the annual totals of all American passerines in Britain and Ireland and fig. 3 their geographical distribution. Fig. 2 separates the months of discovery of (a) the 18 grosbeaks and finches (*Fringillidae*) and buntings, (b) the twelve American Robins *Turdus migratorius* (apparently a rather special case), and (c) the 46 other American passerines; the last group is particularly concentrated in autumn (43 out of 46), with 32 in October, the average autumn date being 13th October.

Into this general picture fit these four additions to the British and Irish list during 1966-68, one bunting (Rufous-sided Towhee *Pipilo erythrophthalmus*) in June and three wood warblers (Parula Warbler *Parula americana*, American Redstart *Setophaga ruticilla* and Blackpoll Warbler *Dendroica striata*) in October. The first Blackpoll Warbler was succeeded only ten days later by another, and notes on both birds follow. The other two warblers have since occurred again in Britain and Ireland: the second Parula Warbler was recorded on 26th November 1967, at St Ives, Cornwall (*Brit. Birds*, 61: 356), and the third on 9th October 1968, at Portland Bill, Dorset (*Brit. Birds*, 62: 486), while the second American Redstart, a male, appeared on 13th and 14th October 1968 on Cape Clear Island, Co. Cork (*Irish Bird Report*, 1968: 46). The only other American passerine new to Britain and Ireland during 1966-68 was a Brown Thrasher *Toxostoma rufum*, found at Durlston Head, Dorset, on 18th November 1966 (*Brit. Birds*, 61: 550-553).

P. F. BONHAM

**Rufous-sided Towhee on Lundy** During the morning of 7th June 1966 I was informed that an unfamiliar bird had been seen by residents in the garden of the Manor Farm Hotel, Lundy, Devon. Miss J. Mundy and I soon located it in a near-by garden much overgrown with shrubs and weeds and bordered by stone walls. Our first impression was of an enormous warbler, the bird's shape and carriage reminding us of a very large Dartford Warbler *Sylvia undata*, even to carrying its tail in the same half-cocked attitude; its bill, however, was noticeably heavy and finch-like. On the ground it behaved more like a thrush, hopping about on long, strong-looking legs, scratching amongst the dead weeds and rummaging noisily under the bushes. The rufous flanks contrasting with the white belly were most distinctive, and the red eyes were quite striking even from a range of 20 yards. The wings were short and somewhat rounded, and a white patch at the base of the outer primaries and white tips to the inner secondaries showed up well against the dusky brown plumage. When disturbed it would fly jerkily away and perch on a fence or wall, landing on one occasion near some Chaffinches *Fringilla coelebs* against which it appeared half as large again, probably due to the very long tail and heavy-looking head. In flight it looked rather shrike-like with

its long, rounded tail which it spread just enough to show the white spots at the tips of the outer feathers. It uttered a loud *cheweeek, cheweeek* several times.

After watching the bird for about half an hour we decided that an attempt should be made to trap it. On returning to the observatory for mist-nets, we identified it from Peterson (1947) as an adult female Rufous-sided Towhee *Pipilo erythrophthalmus*, the first European record (*Brit. Birds*, 60: 322). Shortly afterwards we trapped it and took it back to the observatory to examine, ring and photograph. We also compiled the following detailed description:

*Plumage*: Forehead, crown and nape dark reddish-brown; ear-coverts redder brown than the rest of the head with the feather-shafts showing as pale streaks; lores pale pinkish-brown; mantle, back and rump brown, tinged red. Chin pinkish-brown; throat dark gingery-buff; flanks bright chestnut-red contrasting with the white breast and belly; under tail-coverts rufous-buff; axillaries greyish-white, tinged buff; wing-linings greyish-white turning to a warm brown on the outer edge. Tail blackish-brown, outer pair of feathers with distal half white, penultimate pair with distal third white on outer edge only, pre-penultimate pair with a small white patch at the tip of the inner web, central pair paler than the rest. Primaries and secondaries dusky-brown, 3rd to 6th primaries with a white outer edge and 3rd to 8th with a white patch just below the coverts; greater coverts warm brown, a little darker on inner side of shafts; median coverts reddish-brown; lesser coverts similar but paler; bastard-wing dark brown; tertials dark brown, two with large white tips. *Soft parts*: Bill heavy, finch-like, with upper mandible blue-grey/horn and lower mandible similar but greyer at the base and along the cutting edge; legs flesh-pink; feet mauve; eyes pale claret-red. *Wing-formula*: 4th to 6th primaries equal and longest, 2nd — 9.0 mm, 3rd — 1.5 mm, 7th — 3.5 mm, 8th — 5.0 mm, 9th — 5.5 mm; 1st minute; 3rd to 6th clearly emarginated, 7th slightly. *Tail*: Rounded, the outer retrices being 15 mm shorter than the central pair. *Measurements*: Wing 78 mm, tail 84 mm, bill 15.5 mm, tarsus 28 mm, weight 40 gm.

The identification of such a distinctive species, especially an adult in spring plumage, was no problem. The male differs only in being black where the female is brown. The juvenile has a brown iris and is rich brown above and buffy below, streaked all over with darker brown which it loses by early autumn; its tail is like the adult female's.

Towhees are a small group of buntings distinguished by their long rounded tails and ground-feeding habits. The Rufous-sided Towhee is by far the most abundant and widespread, the others being confined to the western and south-western United States and Mexico. The notes which follow are partly based on Pough (1946).

This species feeds almost entirely on the ground, vigorously scratching away the dead leaves to reach the rich insect population of the moist humus layer. It will also eat seeds and fruits like most other finches and buntings. Overgrown fields, young plantations and woodland clearings provide its typical habitat; barren and densely forested areas are avoided. It breeds in south-west Canada and southern

Ontario, throughout the U.S.A. except most of Maine and eastern Texas and parts of the adjacent states, and in Mexico. Its nest, of loosely woven stems, leaves and bark, lined with fine grasses, rootlets and hair, is either on the ground in the shelter of a shrub or clump of grass, or up to five feet above the ground in a bush or small tree. Two broods are usually raised, the first often in a ground nest and the second in a bush; each clutch is of four to six speckled eggs. The species is a partial and rather short-distance migrant which deserts the northern parts of its breeding range in autumn; during the winter it can be found throughout Mexico and the U.S.A. except in the central northern states and the extreme north-east, where the winter climate is too severe.

There are a number of subspecies. Eastern birds belong to the nominate race; most individuals have red eyes and a loud arresting call *chewink* or *to-bee* which gave the species its name, but many south-eastern birds have white or orange irides and a slurred *shrink* or *zee* call. The western and Mexican forms, placed in several races, have two or three rows of white spots on the scapulars. C. S. WALLER

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**Parula Warbler in the Isles of Scilly** Just after dawn on 16th (October 1966 B.K. discovered an unfamiliar bird among some *Phylloscopus* warblers and Goldcrests *Regulus regulus* which were feeding in the topmost branches of the scrub willows by the Great Pool, Tresco, Isles of Scilly. Despite the poor light, he could discern rather dark upper-parts with contrasting white double wing-bars, a brilliant daffodil-yellow throat and breast and white crescentic marks above and below the eye almost forming an orbital ring. B.K. realised that the species was new to him; nevertheless he was reminded of the Myrtle Warbler *Dendroica coronata* which he and many others saw at Newton St Cyres, Devon, in January and February 1955 (*Brit. Birds*, 48: 204-207) and so it seemed that this might be another American warbler. It soon moved away, however, into an inaccessible area where it was hidden by the glare of the rising sun and he decided, with some misgivings, to leave the Great Pool and return when the light improved.

Nearly an hour later, B.K. again located the bird with its original companions, but this time in good light and not more than twelve feet away; it was even more beautiful than he had at first realised. Occasionally it would hover momentarily over the path just in front of him, catching insects on the wing. After some 15 minutes he went to find D.B.H., and later that morning we both had intermittent but close views of it for nearly an hour. On consulting Peterson (1947, 1961), we soon identified it as a Parula Warbler *Parula americana*, the first British and Irish record (*Brit. Birds*, 60: 329). The only previous European records are of three (possibly four) in Iceland, but Durand



(1963) mentioned a ship-assisted crossing from New York to Southampton (date unspecified); the latter bird eventually died on board and the skin was sent to the Liverpool Museum.

D.B.H. located the Parula Warbler in the same place very early next morning, and on that day the following observers saw it under ideal conditions: R. H. and Mrs M. E. Charlwood, C. F. Farkell, P. R. Holness, R. J., R. S. and Mrs A. M. Johns, D. and Mrs P. Totty and D. B. Wooldridge. It could not be found subsequently. The following is a compilation of the descriptions taken:

*General characters:* Although no longer than a Chiffchaff *Phylloscopus collybita*, it was decidedly more robust and heavier bellied, with a slightly heavier bill. Its wings were rather rounded, and the tips of the folded primaries extended to the base of the tail which was more notched than that of a Chiffchaff. Its plumage provided excellent camouflage, and when it kept quite still for some time it 'merged' with the discoloured green and yellowing autumn leaves of the willows and could be very difficult to find. It did not flick its tail and was not heard to call. In its undulating flight it looked thick-set. *Plumage:* Forehead and crown pale bluish-grey, in some lights with a hint of yellow-green gloss. Lores bluish-grey with clear white crescentic marks above and below the eyes. Nape, shoulders and wings bright bluish-grey, with very prominent double wing-bars formed by broad white tips to median and greater coverts. Paler shafts to the primaries occasionally revealed when wings were partially opened. Mantle and upper rump bluish-grey; yellow-green suffusion varying with the angle of light, more apparent when seen from above. Rump and tail dark bluish-grey; central tail-feathers darker than outer feathers, especially obvious in flight. Chin, throat and most of breast brilliant daffodil-yellow; a faint and rather indistinct rusty band across the upper breast with faint rusty streaks down sides of the upper flanks. Lower breast, belly and under tail-coverts to extreme tip of tail white. *Soft parts:* Upper mandible brown, lower mandible paler (R.J.J. reported it as pink in some lights); eye dark; legs pale pinkish to flesh-brown; feet paler than tarsi.

The breast-band of males in summer, blackish spotted with reddish-brown and tinged with chestnut at the sides, is very much restricted or entirely absent in females (Godfrey 1966). In winter, adult and young males lack the breast-band and are indistinguishable (Bent 1953) and tinges of chestnut on the under-parts of females of any age are considered unlikely. The Tresco bird, therefore, appears to have been a male assuming winter plumage.

The Parula Warbler is one of 113 species of American wood warblers; about half the genera are predominantly Nearctic or West Indian, and the rest primarily tropical or widely distributed through both American continents. They are small birds, and many are brightly coloured, with yellow, orange, black and white the most frequent. The Parula feeds chiefly in deciduous trees and is almost entirely insectivorous: Wetmore (1916) cited a figure of 97.7% animal matter in the stomachs of 61 wintering birds in Puerto Rico.

The species breeds from the north coast of the Gulf of Mexico north

to southern Manitoba, central Ontario, New Brunswick and Nova Scotia. The nest is usually hollowed out from a hanging cluster of beard moss *Usnea spp* or Spanish moss *Tillandsia usneoides* festooned in old orchards, forests or swamps. The clutch of three to nine eggs (average four or five) is incubated, mainly by the female, for 12-14 days. After the young have fledged and the summer moult is over, family parties make to the tree-tops with other small birds. By mid-September the southward migration is under way, continuing well into October. Cooke (1904) described the Parula Warbler passing through Florida in countless thousands, being second in numbers only to the Black-throated Blue Warbler *D. caerulescens*. The winter quarters extend from central Mexico and southern Florida south to Nicaragua and the Windward Islands. Vagrants have occurred in Bermuda and south-west Greenland as well as those already quoted in Iceland.

We are grateful to Dr. Roger Tory Peterson for kindly providing information from the *Check-List of North American Birds* (5th edition, 1957), and to Dr Finnur Gudmundsson for help with the Icelandic records.

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**American Redstart in Cornwall** During the afternoon of 21st October 1967 K.A. obtained a few brief glimpses of a totally unfamiliar warbler-like bird flitting beneath the close canopy of a distant clump of willow bushes in boggy moorland above Porthgwarra, Cornwall. He immediately informed B. Pattenden, N. J. Phillips and E.M.P.A. who were close by. They were shortly joined by Bernard King and K.L.F. Initial observations at long range afforded only a few brief views, so K.A. and K.L.F. approached closer. They found that by standing quietly inside the bushes they could watch the bird adequately, apparently without disturbance, even when it was perched a few feet away. A complete field description was taken and then the other observers (by now including R. M. Curber) obtained excellent views by the same technique; the observations were made in good light for about three hours up to sunset. The bird was not present on the following day. Later examination of Peterson (1947, 1961) and Robbins *et al.* (1966) proved it to be an immature or female American Redstart *Setophaga ruticilla* (*Brit. Birds*, 61: 356), the first record for Britain and Ireland and the second for Europe, the first having been on the Ile d'Ouessant (Ushant), France, on 10th October 1961. The following is a condensation of the field notes that were taken:

*(General appearance:* Distant flight views showed a warbler/flycatcher with dark upper-parts and wings contrasting with bright yellow wing-bars and tail patches, these being larger and more noticeable than those of the Red-breasted Flycatcher *Ficedula parva* and accentuated by the habitually fanned tail. Perched at close range, its blue-grey head, white orbital ring and orange-yellow breast-patches

were prominent features. The clean neat appearance of the plumage with its colour variations made the bird strikingly beautiful. *Behaviour*: When feeding, almost exclusively underneath the canopy, it fluttered adroitly catching insects on the wing, perching for only a few seconds and never appearing to hover. When perched, its carriage was horizontal with tail raised and spread and wings slightly drooped. It occasionally called in flight, a fairly loud high-pitched *sweet* or *sweet-sweet*, or a thin soft *tebwik* sometimes repeated several times. *Structure*: The head and body were similar to a Chiffchaff *Phylloscopus collybita* in shape but larger, and the bill was longer and thicker at the base. The tail was broad and long in proportion to the body. The wings were short and, when closed, the tips projected just beyond the base of the tail. *Plumage*: Forehead, crown, nape and hind neck uniform blue-grey; mantle, back, rump, upper tail-coverts and scapulars greyish-brown, tinged green. Blue-grey cap extended to eye-level then gradually shaded into the under-parts. Chin, throat, centre of upper breast, lower breast, belly and under tail-coverts white, tinged grey; at sides of upper breast a nearly circular orange-yellow patch, shading through yellow to white around the edge. Tail as back, but with broad daffodil-yellow patches on the outer retrices extending well down from the base. Primaries, secondaries and coverts as back except for slightly darker shading on primaries and a daffodil-yellow patch forming an uneven wing-bar at the bases of the inner primaries and secondaries. *Soft parts*: Eye black with clear white orbital ring; legs and bill black.

The yellow patches on the tail and wings distinguish this species from all other American wood warblers. Ageing and sexing of individuals other than fully adult males depend upon the intensity and extent of the colour markings; in general, the breast-patches of immature and adult females are pale yellow and less extensive than the deep chrome-yellow patches of first-winter males, but some females are said to resemble closely immature males. This indicates that the Cornish bird was probably a first-winter male. Incidentally, the male's first-summer plumage is like the first-winter except for a few black feathers on the head; the full adult male plumage (black, with orange patches and white underside) is not acquired until the second autumn, after the July moult.

There are two subspecies, but the only field-character for separating them is that the mantle of the immatures and females of the northern race *S. r. ruticilla* is somewhat darker and washed with duller green than that of the southern *S. r. tricolor*, which is described as olive-green in the first-winter male and browner in the female. Determination of the race of any individual of this species in Europe would help to assess the origin and causes of transatlantic vagrancy.

American Redstarts are among the commonest wood warblers, breeding throughout the temperate regions of North America, but absent from the Pacific coastal strip, the south-west and extreme south-east U.S.A., and arctic Canada; the Canadian and western population comprise the northern subspecies. They are strictly arboreal, typical habitats being secondary-growth deciduous woods, alder clumps and willow thickets. They eat a wide variety of insects which

They are particularly adept at catching in flight. The males arrive in the breeding areas first, setting up and defending territories with song and display-flights. The nest, a cup made from bark fibres, hair and lichens and sometimes decorated with feathers, is built by the female, at an average height of seven feet. The single clutch of two to five eggs (usually four) is incubated solely by the female, the incubation and fledging periods being twelve and nine days respectively.

The species migrates to winter quarters in the West Indies, Central America and northern South America, keeping to the east of the Rocky Mountains and crossing the Gulf of Mexico. Most of the autumn migrants pass through the U.S.A. in September, but frequently some are seen throughout October on the Atlantic seaboard. The return spring migration, northwards along the same routes, occurs mainly in April, with the northern birds arriving at their breeding sites during May.

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**Blackpoll Warbler in the Isles of Scilly** At about 12.30 BST on 22th October 1968 P. W. Burness, R. J. Burness, R. J. Buxton, P. A. Dukes and I were walking near the Post Office on St Agnes, Isles of Scilly, when R. J. Buxton drew our attention to a small bird feeding in the top of a hedge about 25 yards away. Suspecting that it might be an American warbler, and aware of the difficulties in separating some members of this group in the field, we undertook a critical examination of the bird, checking its field-characters amongst ourselves. It proved fairly easy to watch, giving us some good views in bright sunshine, and after some five minutes we had noted what we thought were its main field-characters. I returned to my cottage and produced a sketch and notes which I then compared with descriptions in Peterson (1947) and Robbins *et al.* (1966), concluding that the bird was almost certainly a Blackpoll Warbler *Dendroica striata*. Both books, however, point to the similarities between autumn Blackpoll and Bay-breasted Warblers *D. castanea*, stressing that particular caution is necessary with some individuals. Although this first set of notes appeared to eliminate Bay-breasted (and also the rather similar Pine Warbler *D. pinus*), the points of separation clearly had to be double-checked. I returned to the others, and we continued to watch the bird for about two hours. Excellent views were obtained, often at very close range, and we were able to note additional details which put its identification as a Blackpoll Warbler beyond doubt. It remained on the island at least until 25th October and was seen by many other observers including J. R. H. Clements, R. E. Emmett, Miss J. M. Glibbery, J. H. D. Hicks, D. J. Holman, R. J. Johns, Miss J. H. Parker, B. Rickess, Miss H. M. Quick, Miss C. M. Thomas and N. J. Westwood. A summary of the descriptions taken follows overleaf.



*Behaviour:* Moderately easy to observe, usually feeding very actively and quite openly in the hedgerows of tamarisk, *Pittosporum* and *Escalonia*. Actions sometimes reminiscent of *Hippolais* warblers when 'thrashing' through foliage, but also very agile on the wing, with frequent fly-catching sallies and prolonged hovering to pick insects off foliage like a *Phylloscopus* warbler. Call, uttered infrequently and usually in flight, a thin *ssts*, very reminiscent of the equivalent flight call of the Goldcrest *Regulus regulus*. *Size and plumage:* Slightly larger and more heavily built than the largest Willow Warblers *Phylloscopus trochilus*. Crown olive-green streaked dark; suggestion of paler supercilium above thin dark eye-stripe and lores; ear-coverts lemon-yellow with dusky clouding; mantle olive-green, similar to that of a Meadow Pipit *Anthus pratensis* in fresh plumage, with soft dark streaking obvious even at quite long range; rump clearer olive-green, very finely streaked down centre of each feather; last line of upper tail-coverts blue-grey, with very fine dark streaks mesially. Throat, upper breast and flanks lemon-yellow, with obvious fine dark streaking along flanks forming two lines which continued up sides of breast to join dark moustachial streaks; lower breast, belly and under tail-coverts virtually pure white. Wing-feathers all dark, but median and greater coverts with white tips forming two wing-bars; inner three secondaries broadly edged white; most of remaining secondaries finely edged white; primaries finely edged brighter. From above, all tail-feathers finely edged white, but outermost more broadly with white tips forming white corners to tail; from below, a broad white patch on the inner web of each outermost tail-feather formed white panels at the sides of the tail. *Soft parts:* Bill dark with yellow base to lower mandible; eye dark; legs orange-flesh, brighter than those of most Willow Warblers.

Although this is the first accepted record of this species in Europe, Durand (1963) mentioned a Blackpoll Warbler which stayed aboard R.M.S. *Queen Elizabeth* in the Ocean Terminal, Southampton, after a transatlantic crossing in autumn 1961. It finally died half way across the Atlantic on the return journey.

Blackpoll Warblers are among the most abundant of the large New World family of wood warblers. They are common summer visitors to the vast coniferous forests extending from southern New York State northwards and westwards across virtually the whole of Canada and Alaska, in places to within the Arctic Circle. In autumn they migrate south-eastwards through the eastern United States, where they are among the commonest migrant warblers, on an ever-narrowing path to the Florida peninsula. The vast majority then take the direct route across the Caribbean via Cuba to winter in northern South America as far south as Brazil; some must therefore travel more than 5,000 miles to reach their winter quarters. They are comparatively late migrants, stragglers remaining in Florida well into November.

It is, of course, impossible to say whether individual birds have arrived in Europe with or without the assistance of ships crossing the Atlantic. In the present case, however, there is some evidence for a ship-assisted crossing. The meteorological maps for the period do not show any weather systems suitable for a small passerine to make an unaided crossing. Moreover, Blackpolls have been recorded on

transatlantic liners at exactly the same time of year as the St Agnes occurrence. For example, at least ten were present at the start of R.M.S. *Mauretania's* remarkable voyage in the second week of October 1962, though none survived (Durand 1963).

The New World warblers present at first sight a seemingly impossible series of identification problems. In fact, most species have strikingly diagnostic plumage features and identification appears to be purely an exciting exercise in detailed observation. A few cases, however, are more difficult, and among these is the separation of Blackpoll, Bay-breasted and Pine Warblers in autumn plumage when adults of both sexes and immatures appear similar. Now that the Blackpoll has occurred in Europe this problem should be considered in some detail, especially as the other two species could also occur here, though the Bay-breasted is less abundant than the Blackpoll in North America and the migration routes of the Pine (inland rather than coastal) make it less likely to drift out over the Atlantic. I have compiled a list of the reliable differences between these species in the autumn from the literature and from skins at the British Museum (Natural History):

*Leg colour:* The pale orange-flesh of Blackpoll, as against black in both Bay-breasted and Pine, is diagnostic. *Streaking on upper-parts:* Present and usually obvious to a variable degree in both Blackpoll and Bay-breasted; back colour uniform in Pine, although a very few specimens show hair-line streaks which would not be visible in the field. *Colour of breast and flanks:* Clean lemon-yellow in Blackpoll and buffish or buffish-yellow in Bay-breasted; Pine varies from uniform buff in immature females to bright yellow in many adult males. *Streaking on flanks and sides of breast:* Clear-cut streaking present to a variable extent in both Blackpoll and Bay-breasted, although some Bay-breasted lack this marking entirely; among autumn Pine Warblers only adult males have this marking, diffused rather than clear-cut, but still obvious in the field. *Under tail-coverts:* Silky-white in Blackpoll and buffish in Bay-breasted. *Throat colour:* The Bay-breasted has a whitish throat usually contrasting somewhat with a buffish band across the breast; the throat of the Blackpoll does not contrast with the breast, but is of the same basically yellowish colour.

I am indebted to Dr. Kenneth C. Parkes, of the Carnegie Museum, Pittsburgh, Pennsylvania, U.S.A., for his invaluable comments on this topic and for his help in the preparation of the above summary of the distinguishing characters.

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**Blackpoll Warbler on Bardsey** At midday on 22nd October 1968, on Bardsey, Caernarvonshire, after an exceptionally busy morning during which nearly 500 birds had been ringed, Keith Redshaw and Hugh Miles trapped a small warbler-like bird in a mist-net in Nant withy-bed. It was clearly a rarity, K.R. being convinced that it was American, but as neither could put a name to it they immediately

brought it back to me. On taking the bird from the bag, I noticed that structurally it was closely akin to the Yellow Warbler *Dendroica petechia* trapped on Bardsey during autumn 1964 (*Brit. Birds*, 58: 457-461), but apparently somewhat larger; its wing-formula, too, was very similar, featuring a minute first primary (difficult to locate), while the tips of the second, third and fourth primaries were of nearly uniform length. Its general coloration was a combination of grey-green and yellowish-white, and a general resemblance to some exotic pipit *Anthus sp* was most marked. As we hurried to the observatory we had already provisionally ascribed it to the genus *Dendroica*. On consulting Peterson (1947) we soon found that our bird resembled the illustrations on plate 51 more closely than any other; it was either a Bay-breasted *D. castanea*, Pine *D. pinus* or Blackpoll Warbler *D. striata* and, as it had pale legs, white under tail-coverts and streaked upper-parts (excepting the rump and upper tail-coverts), it was evidently a Blackpoll. Its plumage was in mint condition and the under-parts were extensively suffused with yellowish, suggesting an immature, but its sex could not be determined. After these preliminaries the following detailed description was taken down by K.R. while I examined the bird thoroughly:

*Plumage:* Forehead, crown and ear-coverts yellowish-green; lores an admixture of yellowish and blackish; faint pale yellow supercilium; nape bright grey-green; numerous rictal bristles, blackish, short and rather weak. Mantle, scapulars and back bright grey-green, most feathers with thin blackish centres producing a markedly streaked effect; rump uniform bright grey-green; upper tail-coverts very greyish, tipped greenish. Chin and throat yellowish; breast brighter yellow, with faint dark striations; flanks off-white, with very pale yellow tips; belly whitish; under tail-coverts white; under wing-coverts and axillaries greyish. Central pair of tail-feathers blackish-brown, inner webs fringed white; outermost pair paler, distal third of inner web whitish; penultimate pair as outermost, but whitish area reduced; pre-penultimate pair as outermost, but with small whitish fleck on each inner web just short of tip; all rectrices slightly worn and bleached at tips. Primaries blackish, 5th to 10th with broad white tips to outer webs; secondaries blackish, all with broad white tips to outer webs; tertials blackish-brown, 7th and 8th with broad off-white fringes to outer webs; primary coverts blackish-brown; greater coverts blackish, with broad whitish tips to outer webs; median coverts blackish, outer and inner webs with much whitish; lesser coverts blackish, with pale green fringes; bastard-wing blackish-brown; bastard wing-covert blackish-brown, with pale yellow fringe; primaries, secondaries (square-tipped) and tertials very slightly worn at tips. *Soft parts:* Upper mandible medium olive, lower mandible yellowish, darker at tip; iris blackish; orbital ring yellowish-white, notably below eye; tarsus pale yellowish-brown (straw); toes pale orange-yellow, brighter than tarsus; gape pale flesh. *Wing-formula:* 3rd primary longest, 2nd — 0.5 mm, 4th — 2.5 mm, 5th — 6.5 mm, 6th — 11.0 mm, 7th — 14.0 mm, 8th — 16.0 mm, 9th — 18.5 mm, 10th — 23.5 mm; 1st minute, 9.0 mm shorter than primary coverts; 3rd and 4th clearly emarginated, outer web of 2nd also much reduced (graduated) towards tip. *Measurements:* Wing (maximum) 77.0 mm (both measured); tail 52.0 mm, distance between longest and shortest

feathers 4.0 mm; bill (from skull) 14.5 mm, width (at nostrils) 5.0 mm; tarsus 21.0 mm; weight (at 14.05 GMT) 11.4 gm.

It was ringed as a first-year Blackpoll Warbler, photographed by Hugh Miles (*Brit. Birds*, 62: plate 70) and others, and viewed by a number of enthusiasts, before being released. It flew away quite strongly and rested for a few moments on the sheer face of a wall some 15 feet above the ground; as it did so it called several times, a quite loud *chik*, reminding us of the well-known anxiety note of breeding Meadow Pipits *Anthus pratensis*. By the following day, it had returned to within a few yards of where it was caught.

Its time of arrival is in some doubt; K.R. is of the opinion that a bird he saw very briefly a few days previously may just possibly have been this one. His impression was of a large Yellow-browed Warbler *Phylloscopus inornatus*, but further detail is entirely lacking. With so many migrants on the move, it can never be known precisely when landfall was made. The weather was settled, if rather cloudy; winds were light and variable, visibility mainly poor, and the barometer rising very slowly. The picture in the North Atlantic, however, was utterly different, and had been so for some time. The coincidence with the St Agnes bird (found only ten days previously) is certainly remarkable, but far be it for me to allege whether or not this vagrant had made the entire journey unaided.

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# The Dipper population of Derbyshire, 1958-68

## *Philip Shooter*

During the mid-1950's I spent a considerable amount of time walking by the many rivers and streams in the Peak District of north-west Derbyshire. As I descended from the rough moorland edges into the greener valleys, or through the grey limestone dales, it seemed to me that Dippers *Cinclus cinclus* were commoner in the area than had been generally supposed. Their sedentary nature, and the existing public access agreements covering almost all the streams in this National Park, led me to undertake a population survey. It was soon clear that only about 10% of the Dippers in Derbyshire bred outside the National Park, mostly in the Matlock area which was easily accessible, so the survey was extended to cover the whole county.

### DISTRIBUTION AND TOPOGRAPHY

In 1955 the Derbyshire Ornithological Society listed all the parishes in which Dippers were known to have bred; with their help I then checked every possible river and stream again during 1958-60. The occupied stretches were much as expected and (with the exception of some small streams) these are shown in fig. 1. This also marks the division of the Peak District into two parts—the 'Dark Peak', mostly moorland and rough upland pasture on Millstone Grit, and the 'White Peak', pasture-land on Carboniferous Limestone with steep-sided wooded dales. The rivers of the latter, some 300-400 feet below the general altitude of about 1,000 feet, have very few tributaries compared with those of the Dark Peak, and many are fed from underground; for this reason they are warmer, the Wye being about 4°F more than the Derwent at the same altitude. Almost all the Dipper records for Derbyshire have been to the north-west of a line joining Sheffield, Ambergate and Ashbourne, which are all about 300 feet above sea-level; south and east of this line the rivers appear to be too deep and slow-moving.

### POPULATION

During 1958-62 the Dipper population was more or less static at about 107 breeding pairs: the Derwent and its headwaters, with the Amber, held about 51, the Dove and streams around Ashbourne 22, the Wye and its tributaries 20, the Goyt-Etherow system 13, and the Hipper one. There were no hard winters during this period, but the prolonged drought in the summer of 1959 made the limestone rivers (particularly the Dove) almost dry by late summer, and up to six Dippers were then seen feeding within a few feet of each other.

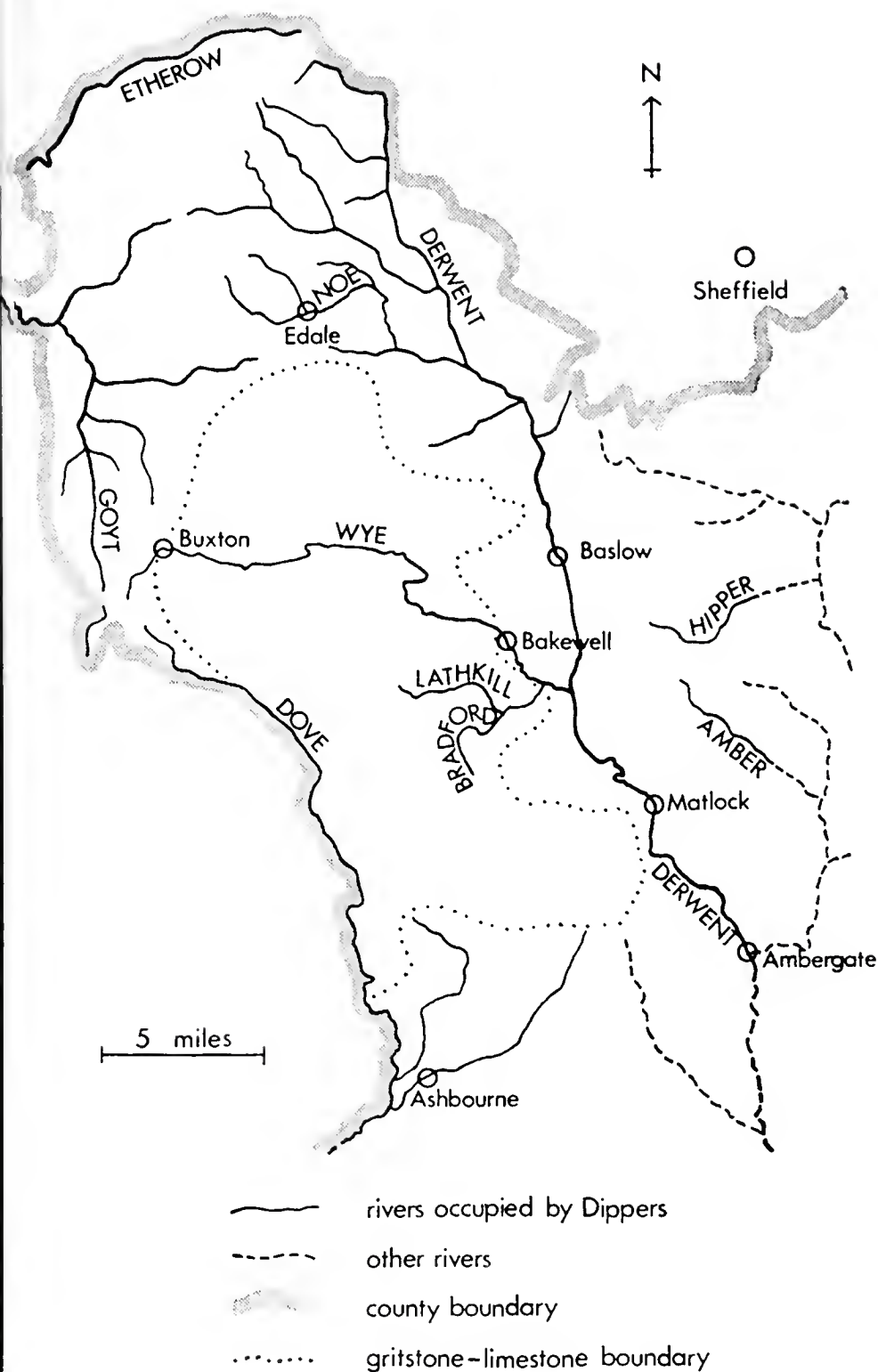


Fig. 1. North-west Derbyshire, showing rivers and streams occupied by Dippers *minckleyi*. The principal watershed (altitude 1,600-2,088 feet) extends NNE from Buxton. The boundary between Millstone Grit (in the north and east) and Carboniferous Limestone is indicated.

The extremely severe winter of 1962/63 froze almost all the headwaters of the gritstone streams for many weeks, reducing the population to 97 pairs in the summer of 1963. Numbers slowly recovered, but one or two of the ten territories left unoccupied in 1963 remained so until 1966. The winter of 1966/67 was much milder than usual, and during the spring of 1967 five pairs were found in completely new territories on gritstone in the south-east of the species' range, one on the Hipper, one on the Amber and three near Matlock. Until then the limestone population on the Dove and Wye had remained constant, but in 1967 several surplus pairs were attempting to set up new breeding sites between existing long-established territories, causing considerable disruption. The lack of tributaries left little room for expansion in the limestone area, whereas the many small tributaries of the gritstone streams are used at times by additional pairs (although many are hardly suitable for Dippers). In the event 112 pairs bred in 1967, but another cold winter reduced the population to its original level of 107 or 108 pairs in the summer of 1968.

One nesting site was lost by the building of the new Errwood Reservoir in the Goyt Valley, the only one destroyed during the survey period. In the past, however, more than 15 miles of river have been flooded by the construction of reservoirs in the gritstone area, probably destroying between six and nine territories; these steep-sided reservoirs are very deep and rarely visited by Dippers. Birds of prey are now very scarce in the Peak District, apart from Kestrels *Falco tinnunculus*, and overhanging rocks seem to afford plenty of roosting places which are safe from ground predators; occasional clutches of eggs are also still taken, mainly by children, but none of these factors is thought to have any significant effect on the population. In the gritstone area the major influence appears to be the severity of the previous winter, while reduced breeding success resulting from excessive territorial competition probably plays a larger part on the warmer limestone rivers.

#### TERRITORIES

Dipper territories in the gritstone area range from five to more than 50 feet wide and vary a good deal in length, more or less compensating for variation in width, whereas those on the Wye and Dove are fairly uniform in both width (15-30 feet) and length. The only two stretches of river where a fair comparison can be made between gritstone and limestone are the Noe and Derwent from Edale to Baslow and the Wye between Buxton and Bakewell. Both are about 15 miles long and flow south-east; they are of similar altitude, width and depth, and have about the same number of weirs. The first (on gritstone) held 13 territories and the second (on limestone) held 14 during each year of the survey. These figures are, of course, for the main river only, excluding tributaries. In each case, weirs account for about two miles of water which

Dippers do not normally use, so the average density on both stretches of river was about one territory per mile.

A survey carried out during 1962-67 by George Wigglesworth and students at Matlock College of Further Education (unpublished) showed that the limestone rivers of the Peak District contain over three times as much potential Dipper food as those on gritstone at the same altitude. It is thought, however, that it is not the length or breadth of a stream, nor even the quantity of food in the water, which governs territory size, but the accessibility of the food. Dippers can dive and swim in quite deep water to obtain their food, but they very much prefer water only a few inches deep, and it seems that territory size is principally controlled by the area of such shallow water. This is very difficult to express quantitatively and varies with rainfall, but during the breeding season it appears to be about an acre. Applying this to the two lengths of river mentioned previously gives a minimum territory length of about a third of a mile. In practice, this area of favoured feeding-ground is often broken by several stretches of much deeper water, which presumably explains the average density of one territory per mile. The deep, clear, alkaline waters of the River Lathkill, seven miles long, support only two pairs of Dippers, but they probably contain more potential Dipper food per mile than any other river in Derbyshire.

#### BREEDING

More than 100 nest records were obtained during the survey from British Trust for Ornithology nest record cards and other sources. About 25% relate to nests over 800 feet above sea-level, which is about the altitude at which moorland tributaries join to form the main rivers. Here the breeding season is short; the earliest date of finding a nest with eggs was 29th April, a clutch of five, and the latest nest with eggs was a clutch of four on 2nd June; the largest clutch was five and the average 3.7. Below 800 feet, a clutch of five was found as early as 19th March and young were sometimes still in the nest at the end of June; the largest clutch was six and the average 4.3.

Four territories, thought to represent a good cross-section, were kept under close observation during 1960-68. The first was on a tributary of the Derwent, among wooded pasture at around 550 feet above sea-level. It was unoccupied in 1963 and 1964, but during the other seven breeding seasons eight clutches totalling 35 eggs were laid, and 26 or 27 young fledged; the largest clutch was five. The second was also among wooded pasture at the same altitude, but on a tributary of the Wye. It was occupied for all nine breeding seasons, but two clutches of eggs were taken and one nest with eggs disappeared. From twelve clutches, totalling 49 eggs, 27 or 28 young fledged; the largest clutch was again five. The third was on gritstone moorland at



1,200 feet above sea-level. During 1960-68, from six clutches totalling 28 eggs, 15 young fledged, but the fate of one clutch was unknown; the largest clutch was four. In spring 1963 only one bird was seen, but a half-built nest was found; in 1968 a nest was built, but apparently no eggs were laid. The fourth and last territory was on a limestone river alongside a village; this site was chosen to see whether Dipper nests suffer the same fate as many others near a village. Between 1960 and 1968 at least 16 nests were built, wholly or partly, but most were pulled apart by children before the clutch was complete; probably no more than ten young fledged during the whole period. The total number of eggs laid in territories one, two and three was 112, from which 68-70 young fledged, about 62%.

#### RINGING AND MOVEMENT

Jeremy Sorensen and other members of the Buxton Field Club ringed 136 Dippers in the Goyt Valley during 1959-66; two were later controlled only a mile from their place of ringing, and a third was found dying after moving four miles. The Sorby Natural History Society ringed 34 Dippers in the Derwent Valley during 1959-67; one was picked up dead only three miles from its birthplace. I colour-ringed 45 nestling Dippers during 1962-67, broadly distributed as follows: Derwent 18, Wye eleven, Dove ten, Goyt three and Hipper three. One which I ringed on the Dove in May 1963 has held territory two miles north since spring 1964 and was still present in 1968; two others (Dove and Bradford) each replaced one of their parents during the following breeding season and two more (Wye and Hipper) bred in their second summer on an adjacent territory. Clearly the Dippers of the Peak District move very little, and the only conditions under which they vacate their territories are severe frost and drought. The high gritstone moorland has the severest winter climate, and the Dippers of this area are those most likely to move downstream.

#### ACKNOWLEDGEMENTS

I would like to thank the many observers who have sent me notes on their Dipper observations in Derbyshire, and in particular David Wilson and Ray Hawley who gave me much help and encouragement in the early days and Derek Allsop, Peter Lomas, Grace and George Wheeldon and George Wigglesworth who helped me draw the work to a close.

#### SUMMARY

A study of the Dipper *Cinclus cinclus* in Derbyshire was carried out during the years 1958 to 1968. About 90% of the population of 97 to 112 pairs were breeding within the Peak District National Park in the north-west of the county. The rivers and streams occupied by Dippers, together with the general topography and geology of the area, are described and illustrated. Factors affecting the population from year to year in different parts of the county are discussed: in the gritstone area the most important appears to be the severity of winter weather, while limitations

on territorial space may play a larger part on the warmer limestone rivers.

Dipper territories on similar stretches of river in the gritstone and limestone areas are compared; in each case the average density is about one pair per mile of river. Territory size is principally controlled by the area (about one acre) of shallow water in which Dippers prefer to obtain their food.

Data on clutch size and breeding success are given for four representative territories; the least successful are those on headwater streams in high gritstone moorland, and also those liable to excessive human disturbance. Finally, evidence from ringing has shown that the Dipper population of north-west Derbyshire is very sedentary except during periods of severe frost and drought.

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## Studies of less familiar birds

### 158 Wallcreeper

*H. Löbhl*

*Photographs by H. Löbhl and E. Waldhoer*

*Plates 24-30*

Although considered to be largely sedentary, the Wallcreeper *Tichodroma muraria* has been recorded as a vagrant about seven times in Britain. The most recent occurrence, and the first for over 30 years, was at Winspit, near Worth Matravers, on the Dorset coast. The first authentic sighting of this individual was on 19th November 1969, though there is some evidence that it had been present since at least 9th September. It stayed throughout the winter, working its way each day back and forth through the abandoned stone quarries that extend along the cliffs for about a mile east from Winspit. Hundreds of bird-watchers travelled to see it, local inhabitants and holiday-makers borrowed binoculars, and it even put in an appearance on television, but at times it could be remarkably elusive and no one seems to have met with much success in photographing the bird. By the end of March it had already acquired the black throat of the male's breeding plumage, and it was last seen on 18th April. This extraordinary episode provides an introduction to Dr Löbhl's account of this fascinating species. EDS

The Wallcreeper inhabits rock walls in the high mountain ranges of Europe and Asia, extending from the Cantabrians and Pyrenees in the west, through the Alps, the Carpathians, the Balkan peninsula, Asia Minor, the Caucasus, Iran, and above all in the Himalayas and their extensions (Voous 1960). In the Alps it breeds up to 2,700 metres

(Corti 1959, etc.) and in the Himalayas as high as 5,000 metres. Many pairs do, however, breed at much lower altitudes. P. G  routet, for example, writing in Glutz von Blotzheim (1962) listed five nest sites in Switzerland between 350 and 550 metres, and most there lie between 1,000 and 2,500 metres. Although the Wallcreeper breeds in exposed places, it is not a migrant. It does, however, regularly leave its high breeding haunts, descending in autumn to lower mountainous regions; in winter the species is to be seen above all on church towers, old castles and the like, and also frequently in large quarries. In the northern Alpine area, most Wallcreepers disperse into the lower mountain ranges of central Europe, particularly the Swiss Jura and as far north as northern Bavaria. It seems that they return to the same wintering areas year after year (see especially Hauri 1970). Whether the Wallcreepers not infrequently found wintering along the rocky Adriatic coast of Yugoslavia are all of Balkan origin or include some from the Alps remains uncertain. There are no ringing recoveries; Wallcreepers are scarcely, if ever, ringed as nestlings and adults are only occasionally ringed in their winter quarters, where they sometimes stray into buildings. Cases of birds breeding on man-made structures, such as the Bavarian castle on plate 29, are exceptional.

Plates 24-26 show the plumages of Wallcreepers in summer and winter. Immediately after the breeding season the adults go through a complete moult into winter plumage, in which the throat is greyish-white and then the sexes cannot be separated. During April, however, there is a body moult into the breeding plumage and the males acquire a deep black throat and breast, whereas the females (contrary to *The Handbook*) either retain the greyish-white breast of winter plumage or, at most, gain a small blackish-grey spot in the region of the throat and breast, which is seldom larger than in plate 26a. About a third of breeding females show no dark mark; these are probably first-year birds (L  hrl 1967). The young can be recognised before the juvenile moult by their uniformly grey colouring. In contrast to the adults they have as yet no greyish-white breast, as can be seen from plate 28b.

The Wallcreeper appears about the size of a Nuthatch *Sitta europaea*, but its weight is decidedly less; at 17-19 gm it weighs approximately the same as a Great Tit *Parus major*. Whereas, however, the wing-length of the Great Tit is given as 70-78 mm in *The Handbook*, that of the Wallcreeper is as much as 93-110 mm. When the wings are folded the tail projects only slightly beyond them, and it is these wings which make the whole bird appear so large (plate 27b). It is able to soar in the wind without much expenditure of energy. The wings are moved very little during this manoeuvre; the bird faces into the wind and is blown upwards, not gliding in the manner, for example, of a Buzzard *Buteo buteo*. It can also execute an angled, downward gliding flight. A swooping dive, during which the wings are generally



PLATE 24. Male Wallcreeper *Tachodroma muraria* in summer dress, Germany (aviary). The body is grey except for the black throat and breast, but the mainly blackish wings are relieved by white spots and by large areas of crimson on the coverts and on the bases of primaries and secondaries (pages 163-168) (photo: H. Tölg)





PLATE 25. Male Wallcreeper *Tichodroma muraria* in summer dress, Germany (aviary). Below, in sand-bathing it rubs its breast on the rough surface, kicking with its feet and supporting itself on its wings (page 166); the white primary spots and areas of crimson at the bases of the remiges show well here (photos: H. Löhr)





Pl. VII 26. Wallcreepers *Tichodroma muraria*, Germany (aviary). Above, female in full summer plumage with only a small black patch on the otherwise whitish throat; in some cases even that is absent (page 164). Below, male in winter with the throat now white; note the large feet as it clings typically to a wall (photos: H. Lohr)





PLATE 27. Wallcreeper *Tichodroma muraria* feeding near-fledged young in a hole in the Bavarian castle shown on plate 29. In begging for food, the young raise their wings high and the white spots and crimson coverts are conspicuous at long range. The adult also constantly flicks open its wings with a slow movement as it climbs about the rock face (page 165) (photos: E. Waldboer). Right, winter adult in flight, Germany (aviary). Note the long, broad, round hind wings narrowing at the base and largely black beneath, apart from pink coverts and the white spots; the dark tail is tipped with white (photo: H. Löhrl)







PLATE 28. Above, adult carrying harvest spider into the nest hole; the food is entirely insects and other invertebrates extracted from crickets with the long and slender bill (page 166). Below, three young waiting for food at the entrance; the whole brood of five left the nest a few hours later; they resemble the winter adult, but have uniformly grey throats (page 164) *photos: E. Waldhoer*







PLATE 29. The castle of Neuschwanstein, Bavaria, where the photos of Wallcreepers *Eichodroma muraria* on plates 27-28 were taken; the hide (arrowed) is just to the right of the buttress tower. Below, the entrance hole (arrowed) under one of the castle windows and the adult Wallcreeper on the wall near-by (photos: E. Waldhoer)



30a. Typical nesting  
 at occupied each year  
 .llereepers *Tichodroma*  
*ia* at 2,100 metres in  
 irol, Austria, where  
 um runs among steep  
 faces and there is  
 sunlight (page 166);  
 scattered trees are  
 a pines *Pinus cembra*

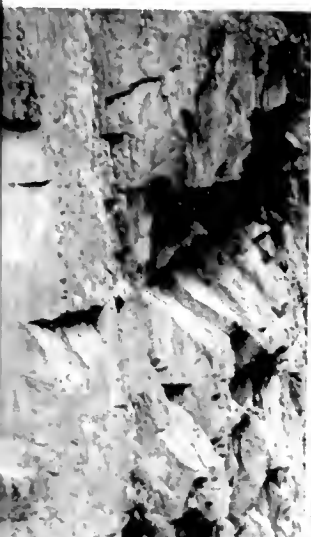
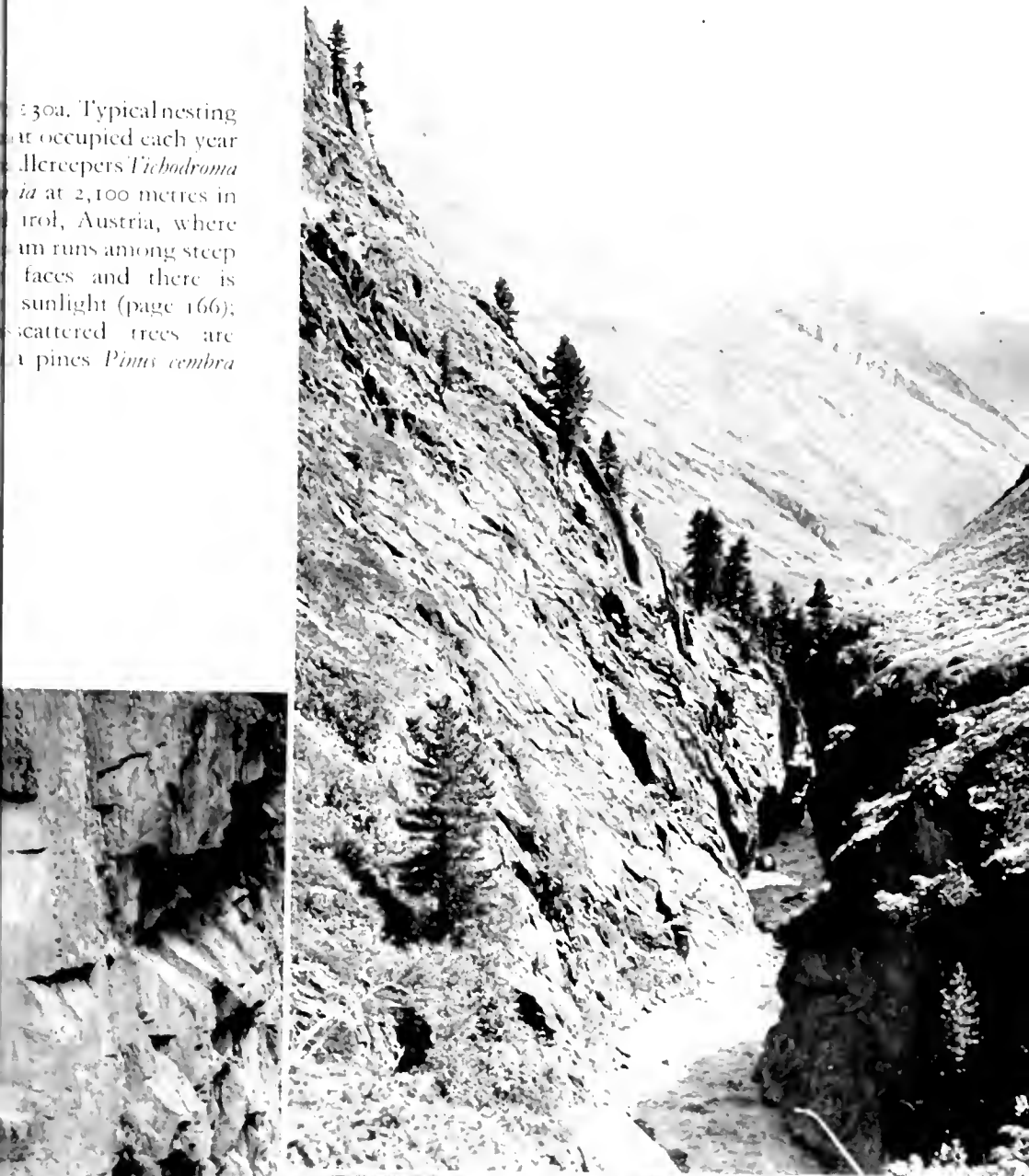


PLATE 30b. Nest entrance  
 (arrowed) of Wallereepers  
 immediately above a small  
 waterfall inside a rocky  
 gorge. Mountain faces,  
 often near water, are the  
 natural habitat and nests  
 on buildings, as on plates  
 27-29, are unusual (page  
 164) (photos H. Lohr)



PLATE 31. Spotted Sandpiper *Tringa macularia*, Scilly, September 1965. Left, note the clean appearance, uniform upper-parts and barred wing-coverts (photo: D. I. M. Wallace). Above and below, the same bird in the hand, showing the barred wing-coverts (which contrast with both scapulars and tertials), the white trailing edge to the secondaries (faintly continued on to the primaries) and the strongly barred outer tail (pages 168-173) (photos: R. H. Chubbard)





held close to the body, is used from great heights (Löhrl 1967).

The thin, down-curved bill and the similarly thin feet and toes earlier led to the Wallcreeper being grouped with the treecreepers in the family Certhiidae. Yet Wallcreepers do not use the tail as a support in climbing and they do not recall treecreepers in their general behaviour. Vaurie (1957, 1959) placed the species, as did Mayr and Amadon (1951) before him, in the same family as the nuthatches (Sittidae). The true relationship of the Wallcreeper to other groups, however, is still uncertain. Only two races are distinguished in the species' extensive range.

The most conspicuous plumage features of the Wallcreeper are its red wing-patches which can be seen very well at close range as the bird has a habit of continually flicking its wings. Many passerines do this, of course, but the Wallcreeper has disproportionately large wings in relation to its size and the wing-flicking is such a slow movement that it is much easier to pick up than with other small birds. During this wing-flicking the primaries are moved outwards briefly, displaying the white spots as well as the red coverts. When, however, the Wallcreeper threatens rivals of its own species or other birds it plays its wings without the white spots becoming visible. It is then that the red on the wings is shown to its best advantage.

Wallcreepers often use their wings as a support in climbing and make only small hops with the feet alone. They prefer overhangs to sheer walls of rock. They live solitary lives and, especially from October onwards, are extremely aggressive towards all others of their own species. Each bird requires, and defends, a large winter territory, and summer territories are also very large. It is not really possible to measure the extent of the rocky areas which make the breeding territory, but excursions from the nest in search of food frequently cover about 500 metres in every direction, including vertically, and may be still further extended. In places where Wallcreepers breed in the gorges of mountain streams one may suppose a territory of approximately one kilometre in length.

Furthermore, male and female undertake separate sallies in search of food during the breeding season, and it is only very infrequently that one hears the contact call which, in any case, is audible for only a short distance. Apart from this somewhat variable call-note with which the male announces his arrival at the nest-hole, another may be heard especially during the threat display in the presence of a rival, but also between the male and female of a pair at the beginning of the breeding season. The song of the Wallcreeper consists of piping notes. Both male and female may sing in their winter territory; in spring the male sings mainly during nest-hole advertisement and song given at the entrance to the nest-hole is then frequent. He may also sing from inside the hole when a female has put in an appearance. In



nature the song is often audible only at close range because the rushing of wind and water—the latter often found at breeding sites (plate 30)—drowns all other sounds. Thus the voice of the Wallcreeper is unimportant, and it is therefore probable that both the wing-flicking and the striking coloration have evolved as an adaptation towards this situation. The Wallcreeper is perhaps the only song-bird which has so few call-notes; it lacks both the alarm and agitation calls which one hears from every other song-bird when its nest is threatened. When disturbances occur at the nest, however, parts of the Wallcreeper's song may often be heard, and sometimes even the full song, either or both sexes participating.

The typical habitat is shown in plate 30a. The Wallcreeper frequently breeds in the rocky gorges of mountain streams, and here it is much easier to find and to observe than on rock walls. It favours spots where water runs down and sections of rock are bathed in sunlight at different times of the day. In the early morning Wallcreepers are usually found in sunny places; in the midday warmth, in contrast, they prefer shaded surfaces.

The frequent sun-bathing of Wallcreepers is a conspicuous feature. When the female leaves the nest for a break in incubation, often the first thing she does before searching for food is to take a sun-bath. For this the normal positions, clinging to a rock face, are assumed, but not infrequently the bird lies prostrate on the rock floor with wings spread wide. Sun-bathing is commonly associated with sand-bathing. The bird rubs its breast-feathers over a flat piece of rock covered with sand or fine gravel. During this manoeuvre it also executes sideways kicking motions with the feet while supporting itself on its wings. Sand-bathing is usually performed in full sunlight, and may be observed throughout the year, but especially at times of moult, that is in April and August-September. In the captive state, where their activity is severely restricted, they frequently go in for sand-bathing even when the sun is not shining (plate 25b).

Wallcreepers feed entirely on animal matter, taking insects of all kinds and also spiders (plate 28a). With their long bills and conspicuously forward-pointing eyes they examine every likely crack and crevice in the rocks. In winter their diet consists mainly of hibernating flies and spiders. For their young they prey mainly on owlet moths (*Noctuidae*), the wings of which they remove before feeding them to the offspring. As they usually bring food from long distances, the bill invariably contains several insects at once, sometimes three owlet moths carried crossways. Grasshoppers are also favoured. Flying insects are captured in the air, while those at rest are picked off steep rock faces, sometimes in a hovering flight.

The Wallcreeper breeds in holes in rocks. The male advertises his selected site by striking flight acrobatics which begin and end at the

nest-hole, and also by song. In lower mountainous areas, nest building begins in early May, but above 2,000 metres not regularly until the last ten days of that month. The nest resembles that of a tit, and apart from grass and root fibres consists mainly of moss, lined with animal hair. The eggs, three to five in number, are similar to those of tits or nuthatches, but with only a few brown flecks. Incubation, as with Nuthatches, probably lasts some 15 to 17 days (Girtanner 1868). The young remain very long in the nest, probably about 26 days, and are fully fledged when they leave. Plates 27a and 27c show that, while being fed, the young arch their wings rather higher than do most other passerines.

The number of chicks is often less than the clutch size. In one nest-hole in 1964 I found only one young bird together with two unhatched eggs, in another in 1968 only two young, while a second nest examined in 1968 contained four chicks. Nevertheless, five eggs and five young are not as rare as the literature might lead one to believe. For example, plate 28b does not show all the young of this brood; there were in fact five. I know of another brood of five young, from the Tirol. All the same, one can say that the Wallcreeper is the only European song-bird which is not a migrant, feeds exclusively on insects and yet manages to survive with a single brood of so few young. From this it may be concluded that the mortality rate of the species is very low. Nest losses are indeed extremely rare. Although both Weasels *Mustela erminea* and Stone Martens *Martes foina* occur regularly in the Wallcreeper's breeding haunts, the nesting holes are almost always inaccessible. Very often they are situated directly above rushing streams or waterfalls (plate 30b), so that a potential robber could only approach from above and would run the risk of plunging into the rushing water; the entrance to the nest is invariably protected from above by an overhanging rock. In recent years I have observed a total of 23 broods in regularly occupied breeding haunts, in most cases up to the week in which the young flew. Only one brood was lost and this was when there were still eggs in the nest: a Weasel was the only possible culprit. During nest-building the stream beneath the nest in question was swollen in flood, thus offering protection to the site, whereas later the water subsided and consequently the nest-hole became accessible from the bank.

Birds of prey apparently present little danger to a Wallcreeper. When one is attacked, it immediately leaves the rock face and in the air appears almost always to evade the predator by its extraordinary agility. Hauri (1970) observed unsuccessful attacks on Wallcreepers by Sparrowhawks *Accipiter nisus* and Peregrines *Falco peregrinus*. He observed too how Wallcreepers chased Sparrowhawks in the air for a long time, and I myself have watched a Wallcreeper pursuing a Kestrel *Falco tinnunculus*.

In conclusion, I am extremely grateful to Michael Wilson for translating my text from German into English.

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## Identification of Spotted Sandpipers out of breeding plumage

*D. I. M. Wallace*

*Plate 31*

## INTRODUCTION

The Spotted Sandpiper *Tringa macularia*, now generally treated as a full species once more (e.g. Vaurie 1965), presents no identification problem in its breeding plumage. Immatures and adults in winter plumage, however, are widely held to be indistinguishable in the field from similarly aged Common Sandpipers *T. hypoleucos*. As noted in *The Handbook*, the definite identity of some individuals is difficult to establish even on the museum bench. The fact, therefore, that during 1965-68 seven records of Spotted Sandpipers out of breeding plumage were accepted (*Brit. Birds*, 59: 288, 60: 318, 61: 341, 62: 469) warrants discussion. This need was first noted by the late D. D. Harber and he asked me to help meet it. I have used his and my notes on the 1965 bird, and J. L. F. Parslow and F. R. Smith have supplied me with full details of those in 1966 and 1967.

These four records, all from the Isles of Scilly, were as follows:

- (1) St Agnes, 23rd September to 28th October 1965  
(trapped on 24th September and 15th October)
- (2) Tresco, 3rd September to 1st October 1966  
(trapped on 21st September)
- (3) St Agnes, 23rd to 25th September 1966
- (4) Gugh and St Agnes, 6th to 21st September 1967

All four arrived in September and three made the extended, presumably recuperative, stays so often associated with American waders in Scilly. All were noticeably tame, and could usually be approached to within a few yards. Migrant Common Sandpipers were about the islands each year at the same time as the Spotted Sandpipers. Notes on the Spotted Sandpipers of 1968 and 1969 are not included, though I saw the St Agnes/Tresco bird of 1968 and one on near-by St Mary's in 1969 and could find no unusual features on either.

#### GENERAL APPEARANCE AND VOICE

It must be understood that all four birds could have been taken at a glance—and even after extended observation—for Common Sandpipers. Their shape and size, behaviour and habitat selection in no way indicated that they were of a different species. Only on detailed examination at short range could observers recognise the plumage differences that separate the two species. More useful was their vocabulary; though they called less frequently than migrant Common Sandpipers their notes were generally very distinctive, being quieter and more varied and having a different tone.

#### PLUMAGE CHARACTERS

A digest of the many notes and sketches of all four, together with feathers, feather drawings and photographs of the first and feather drawings of the second, shows the following features to be diagnostic (or at least indicative) of the Spotted Sandpiper:

##### *Bill colour*

Essentially horn with noticeably dark, almost black tip and (on 1 and 2) a fleshy-orange or yellowish base to lower mandible, thus showing a trace of the breeding dress pattern. The Common Sandpiper's bill is dark brown.

##### *Head and face*

Lores and ear-coverts uniform, not streaked; orbital ring white, very striking due to poorly marked supercilia (see plate 31b). The latter mark is shared by some Common Sandpipers.

##### *Upper-parts*

Mantle cleaner and greyer in tone, lacking any warm brown, appearing almost uniform. Some feathers showed faint subterminal bars but the widely dispersed shaft streaks and cross-bars of autumn Common Sandpipers were absent. In contrast, wing-coverts evenly barred blackish and greyish-white. At short range and under most lights, this difference between mantle and wing formed a



most striking field-mark. It is clearly portrayed in Taverner (1949) and Peterson (1947, 1960). Though the wing-coverts of immature Common Sandpipers are also barred, the marks are closer in colour (dark brown and buff). The barring is apparently also less marked in winter adults and none of the Common Sandpipers closely observed in Scilly, nor any specially examined in Berkshire (by J.L.F.P. on 12th September 1966) and in southern Nigeria (by the author in the winters of 1968 and 1969), exhibited the marked contrast between mantle and wing-covert plumage shown by the Spotted Sandpipers—see plate 31 and Voous (1960).

#### *Under-parts*

Chin pure white, throat also white becoming sullied with greyish olive-brown at breast and near chest-patches, the latter unmarked save for a few faint streaks (see plate 31b). Unfortunately no accurate comparison of these areas with those of Common Sandpipers was possible in the field but an examination of skins indicates that the differences (fig. 1) are constant.

#### *Legs*

Distinctly yellowish, varying from fleshy yellow-brown through pale greenish-yellow to bright ochreous-yellow (on 2). The legs of all four were much more brightly coloured than those of the Common Sandpipers, whose legs were usually an inconspicuous grey-green.

#### *Upper wing in flight*

Wing-covert barring not obvious, but a white trailing edge to the secondaries and inner primaries noticeable in the field, except on the second bird on which, however, it was discerned when in the hand. Plate 31a (of the 1965 bird) shows that this was merely a thin edging on all but the inner two feathers, but at close range in the field it was clearly visible. It is consistently illustrated by Peterson (1947, 1960, 1961). Common Sandpipers on Tresco and St Agnes in October 1965 did not show this pale edge in the field, though the normally marked areas of white on the inner secondaries were visible as illustrated in the *Field Guide*, etc. This character probably results from the dark inner secondaries heightening the contrast of the white trailing edge.

#### *Upper tail in flight*

Outer feathers (on 1 and 3) much blotched with black or brown chevrons,

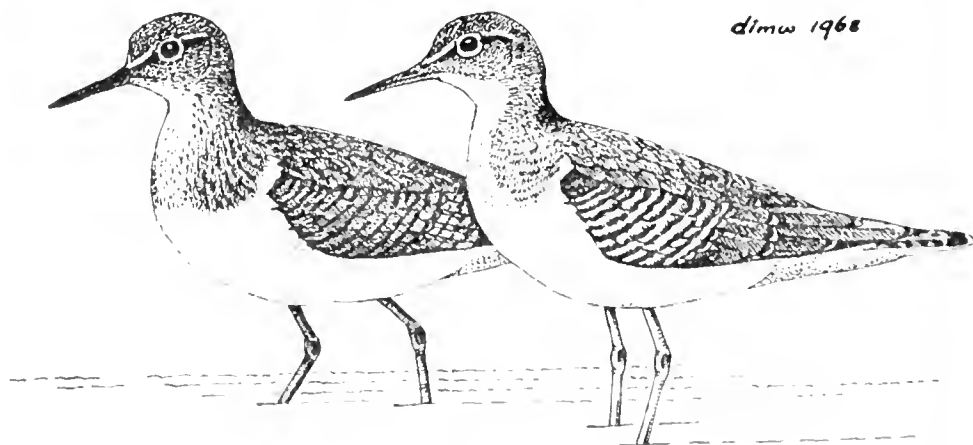


Fig. 1. Common Sandpiper *Tringahypoleucos* (left) and Spotted Sandpiper *T. macularia*. Note the latter's greyer, more uniform, mantle contrasting with strongly barred wing-coverts, almost unstreaked breast-patches, pure white throat and chin, conspicuous eye-ring, bill pattern and yellowish legs (see pages 169-170)

making the sides of tail appear barred to the very edge (see plate 31c). Thus at least two birds did not have the tail 'outlined' in white as in the Common Sandpiper, and all appeared darker-tailed.

From the detailed analysis of the above characters, it appears that all four birds were in immature or first-winter plumage. This conclusion is not quite so rash as it may seem; Dresser (1903) isolated most of these features 70 years ago. The slight but distinct differences are shown (in standing birds) in fig. 1 and (in flight) in fig. 2.

#### CALLS

Fifteen transcriptions of the four birds' calls were made. These were mainly flight calls, but a distinct alarm note was also heard:

##### *Flight calls*

Notes of two or three syllables were frequently recorded. The former were more common and were written without a terminal consonant only once. They may best be rendered as *teep-teep* (with variants from *sooeet-sooeet* to *swee-wee*), completely lacking the ringing, whistling quality of the Common Sandpiper's flight call, being much quieter and less strident and even suggesting Meadow Pipit *Anthus pratensis* to some ears. The tri-syllabic call may be transcribed as *weet-loo-eet* (with variants from *tit-it-weet* to *cheep-cheep-cheep*). It was phrased like the tri-syllabic call of the Green Sandpiper *T. ochropus* but was much more muted.



Fig. 2. Common Sandpiper *Tringa hypoleucos* (left) and Spotted Sandpiper *T. macularia*. They share a white wing-bar, but the latter's darker inner secondaries accentuate the narrow white trailing edge. Note also the more extensive barring on its outer tail-feathers, the tail appearing generally darker (see pages 170-171)

*Alarm call*

When closely pressed, the first bird uttered another distinctive call, a disyllabic *tloo-it* (usually repeated).

Common Sandpipers on Tresco and St Agnes in October 1965, in Berkshire in September 1966 and in southern Nigeria in the winters of 1968 and 1969, were listened to with great care by observers fresh from the Spotted Sandpipers of those years, but no calls other than the classic *tsee-wee* or *tsee-wee-wee* were heard. Thus, with the exception of the second bird which gave a *sweet-wee* call, the vocabulary of all four individuals differed distinctly from that of migrant Common Sandpipers. Peterson (1960, 1961) noted the call of the Spotted Sandpiper as 'a clear *peet* or *pee-weet!* or *pee-weet-weet-weet-weet!*', and incidentally Taverner (1949) gave *Pewit* and *Peetweet* as local names in Canada.

With plumage characters diagnostic only in the most favourable circumstances, voice is the best distinction. Unfortunately *The Handbook* missed this clear dichotomy, otherwise we might have noticed autumn and winter Spotted Sandpipers long ago.

## ACKNOWLEDGEMENTS

Many observers contributed to the successful identification of the Spotted Sandpipers discussed in this paper. Chief among them were those who trapped the first and second birds, namely J. R. Mullins, B. Marshall, C. S. Waller, P. J. Grant, and the late D. D. Harber, and R. F. Thearle, M. Kendall and S. C. Joyner. Other major contributions came from R. H. Charlwood, who took the photographs on plates 31a and 31c, D. B. Hunt, R. J. Johns and J. L. F. Parslow. The Rarities Committee also helped, and I am particularly grateful to R. Wagstaffe who examined skins during the circulation of the four records analysed in detail and agrees with the conclusions in this paper.

## SUMMARY

Previous statements that in immature and winter adult plumages Spotted Sandpipers *Tringa macularia* are not separable in the field from Common Sandpipers *T. hypoleucos* have not been borne out, at least in the case of immatures. Experience of recent records on St Agnes and Tresco, in the Isles of Scilly, shows that certain diagnosis is possible. It is clearly worth examining any autumn or winter Common Sandpiper that sounds at all unusual. If it has a dark-tipped bill, a white chin and clean throat, barred wing-coverts contrasting with a uniformly greyish mantle, and yellowish legs, and shows in flight light trailing edges to uniformly dark secondaries and strongly barred tail sides, it is on the evidence presented here a Spotted Sandpiper. Confirmation by trapping is nevertheless recommended.

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## Notes

**Heron mobbed by Starlings** On 30th September 1964, at Lacock gravel pits, Wiltshire, we watched a Heron *Ardea cinerea* circling and coming down to land on a small island. At the same time a group of some 2,000 Starlings *Sturnus vulgaris* flew over the pits on their way to roost near-by. About half of these deviated from their course and pursued the Heron for some five minutes, circling and diving round it at some speed, still in a closely knit group. At first the Heron took little notice of its followers, but it soon began calling loudly, diving steeply and twisting continually to evade attack. The Starlings gradually lost interest, and some left the fray, but about 200 still followed the Heron round the pits. Eventually it began to lead its pursuers away from their roost, so they gave up the chase and returned to their fellows.

This mobbing was observed on four later occasions, with fewer Starlings involved, and once two Herons were mobbed in the same way. RODERICK C. FAULKNER and JULIAN C. ROLLS  
*British Trust for Ornithology, Beech Grove, Tring, Hertfordshire*

**Large concentration of Snipe during freezing conditions** On 15th February 1970, on an extensive area of inland flooding at Kingsmoor, Long Load, Somerset, that had frozen over, I saw a concentration of at least 2,800 Snipe *Gallinago gallinago* together with small numbers of Ruff *Philomachus pugnax*, Dunlin *Calidris alpina* and Teal *Anas crecca* standing out in the open in the short wet grass at the edge of the ice. Their behaviour was unlike that of most waders in winter, which often stand all facing in one direction; these were in a quarrelsome, disorderly, tightly packed mass. About 2,200 could be seen in one flock, the other 600 being in a separate compact group about 50 yards away. Both flocks were, however, visible at the same time. As I approached them, up to 500 took flight, circling fast and low several times before returning to the flock. Weather conditions must have been the cause of this remarkable gathering, because on a previous visit on 5th February 1970, and again on 19th February 1970 (four days after the thaw), Snipe were well scattered over a wide area, mostly concealed; they could be flushed only in small parties, and no more than a few hundred could be accounted for. DAVID E. PAULL

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**Black-headed Gulls eating birch seed catkins** On 1st February 1970, at the London Zoo, we saw two Black-headed Gulls *Larus ridibundus* perching on a flat branch 30 feet up near the top of a birch tree *Betula*. This tree is one of a group growing on an island in the 'Three Islands Pond', which is continually visited by gulls that take the food provided for captive waterfowl. We saw one gull reach down from the branch, pluck a catkin of birch seeds, and swallow it. The other reached down and plucked three more catkins, swallowing each one quickly. Both birds then flew down to the water.

Collingwood Ingram (*Brit. Birds*, 61: 311) recorded this species feeding on olives from beneath trees, and there are scattered references to perching in trees, but none, apparently, to actually taking growing food from trees.

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**Black-headed Gulls feeding on acorns** In 1969 there was an exceptional crop of acorns in the woodland adjoining my house at Harrietsham, Kent. On 17th November I noticed a flock of Wood-pigeons *Columba palumbus* taking acorns from a big oak *Quercus robur*. Much to my surprise they were joined by a number of Black-headed Gulls *Larus ridibundus* which also proceeded to feed on the acorns growing on the oak and on others lying underneath on the ground.

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**Food-hiding by Rooks** D. G. Andrew's interesting note on food-hiding by Rooks *Corvus frugilegus* (*Brit. Birds*, 62: 334-336) reminded me of the following passage from the Reverend Dr George Skene Keith's *General View of the Agriculture of Aberdeenshire* (1811: 370):

The woods and plantations in this higher division of Marr occupy nearly 100 square miles. But they grow very irregularly, being in some places very thickly planted, and in others raised by nature, at very different distances between the trees. Of these woods and plantations, nearly one third has been both inclosed and planted; one third has been raised by nature, without either inclosing or planting the ground; and the remainder has been surrounded by fences for keeping out the cattle, and then been stocked with wood, raised from seed either blown by the wind, or carried by the rooks, who, by some instinctive impulse, carry the cones of the Scots fir in their bills, to provide habitations for their offspring at a remote period, when the seeds contained in these cones become trees in which they may build their nests. In these higher districts wood grows so easily, the proprietors need only inclose an extent of hilly ground and thus shut out the cattle. The wind and the crows will in time supply him with seeds.

Dr Skene Keith did not actually state that Rooks buried pine cones, but his account does establish that this species' habit of carrying cones from one place to another was known in the Braemar district of Aberdeenshire 160 years ago. It also suggests that in those times the Rook

possessed some slight economic value, lost now that reafforestation is carried out so intensively by man.

ALEX TEWNION

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**Further observations on food-hiding in the Corvidae** This note supplements my previous one on food-hiding by Rooks *Corvus frugilegus*, Carrion Crows *C. corone*, Jackdaws *C. monedula* and Magpies *Pica pica* (*Brit. Birds*, 61: 228-229), and deals partly with the Raven *C. corax*, a bird not specifically mentioned as concealing food in *The Handbook*. K. Z. Lorenz, however, referred to food-hiding in tame but free-flying individuals of this species in some of his earlier papers (now available in English translation in his book *Studies in Animal and Human Behaviour*, vol. 1), and there is no reason to believe that the habit is at all unusual in the wild.

While on the island of Djerba, Tunisia, in April 1969, my wife and I found that Ravens (often in pairs) were common in the palm groves in the vicinity of our hotel on the north-east coast; they were quite tame and we regularly watched them, mainly from the balcony of our room in the early morning. On 10th April a single Raven alighted on the sand at the edge of the palms with a large piece of bread in its bill and, after walking about for a minute or so (apparently in search of a good hiding spot), eventually pushed the bread into the ground with its head turned sideways and then, with the mandibles slightly open, repeatedly raked in sand over the spot from side to side. Finally, it flew off a few yards when two more Ravens settled near and, after the latter had gone, it picked up a dry, fallen date and pushed it into the tangle of fibres at the base of a palm tree. On 15th April a single Raven was watched breaking up bread and transferring small pieces to its throat-pouch; it then hid them individually in the vicinity, regurgitating each item and again pushing it into the sand with the head held sideways. This time, however, the bird also covered the first piece with a scrap of paper fetched from a few feet away, adding a second bit of stuff afterwards. Later in the afternoon of the same day, a pair of Ravens foraged near the balcony and one pulled at what looked like a piece of dry dung held under its foot, ate something from it and then pushed the rest into the sand from where its mate soon recovered it. The final observation was on 19th April when a single Raven broke up and ate much of a piece of bread, then hid the rest in the ground, raking sand over it. On this and all other occasions on which a bird was observed hiding food in the sand, it deliberately selected a spot where a ridge had formed, usually over a piece of debris, placing the item into the rough, leeward side.

Since the publication of my previous note, in addition to these data on the Raven, I have been able to make further observations on the other four species of crows mentioned above, particularly the Rook

(at Chew Valley Lake, Somerset) and the Carrion Crow (in my garden at Clevedon, Somerset). It seems worthwhile briefly summarising the main features of the food-hiding behaviour that emerge, drawing also on the observations on the Rook by Bernard King and Julian C. Rolls (*Brit. Birds*, 61: 417-418) and by D. G. Andrew (*Brit. Birds*, 62: 334-336). The behaviour of all these Corvidae seems to be basically similar. Surplus food is carried in the bill or throat-pouch (or both) and then pushed into loose earth, sand, a hollow, crevice or vegetation (such as tufts of grass), or placed under an object—being regurgitated if necessary before or after the bill is inserted into the hiding place. Once placed in position, the food is then often deliberately covered, the bird either raking over earth or sand with its bill or selecting and placing a 'lid' over the spot. This latter is usually a piece of debris lying in the vicinity (such as dead grass, bark or even paper); one Rook at Chew pushed some bread into the open end of a paper bag and then placed a flattened cigarette packet over it. At times, also, the crow may vigorously pluck living vegetation (such as grass) and use this to cover its cache.

Additionally, only the Rook (so far as is known at present) will dig out a special hole in the ground with its bill in which to hide food. This seems to be a regular practice among the Rooks observed by Andrew (*op. cit.*) and by T. J. Richards (*Brit. Birds*, 51: 497-508) whatever the condition of the ground, though those watched by King and Rolls (*op. cit.* and *in litt.*) and by myself dug their respective holes in hard ground. Further, unlike Andrew's birds, the Rooks at Chew usually hid their food in grass tufts without preliminary excavation. Clearly, further observations are needed on the factors determining preliminary digging in the Rook.

At least in the case of casual food-hiding (i.e. of non-seasonal items), individuals of most of the Corvidae mentioned here and in my previous note seem most likely to conceal items in the immediate vicinity of the food 'crop' if alone; but if other conspecifics (such as mate or flock companion) are present too, they usually collect up the food and fly off with it—as they also do if alarmed or suspicious for any reason. Lorenz (*op. cit.*) stressed, however, that the Jackdaw never learns to avoid companions when hiding food whereas the Raven does so from an early age. When engaged in the seasonal burying of acorns and pine cones, the Rook (at least) will also travel regularly backwards and forwards over quite long distances, often concealing its cargo in areas where flock foraging is common at other times.

Now that the superficial details of food-hiding in the genus *Corvus* (especially) have been established by casual observation of the type recorded here, there is urgent need for detailed, long-term investigation of both the hiding *and* recovery of food by these species, so that the full significance of such behaviour can be assessed—particularly

in the Rook in which food-hiding seems to be better developed than in closely related, sympatric species. All in all, the family Corvidae offer a fascinating opportunity for comparative studies of the adaptive significance and evolution of food-hiding in a group of highly successful birds. The value of seasonal food-hiding has already been well demonstrated in the Jay *Garrulus glandarius* (e.g. D. Goodwin, 1951, *Ibis*, 93: 602-625; M. R. Chettleburgh, 1952, *Brit. Birds*, 45: 359-364; and I. Bossema, 1968, *Proc. K. Ned. Akad. Wet.*, 71: 1-5) and, especially, in the Nutcracker *Nucifraga caryocatactes* (P. O. Swanberg, 1951, *Int. Orn. Congr.*, 10: 545-554). Both these species make prolonged use of their cached food well into the following year and even feed their young on it. The Nutcracker is probably the most specialised food-hoarder among Palearctic Corvidae in that, unlike all the other species mentioned (1) it does not usually hide its food (hazelnuts and pine cones) in individual units, but forms a number of concentrated 'stores', and (2) such stores are located only in the individual's territory which is separate from the communal gathering area. Thus, as in shrikes (Laniidae)—and also in squirrels (Sciuridae)—the habit of forming a 'store' or 'larder' is correlated with territorialism, whereas the hiding of single food items apparently is not (see also K. E. L. Simmons, *Brit. Birds*, 62: 203-204).

K. E. L. SIMMONS

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**Magpies persistently attacking putty** I was interested in the note by Miss Eileen M. Palmer on a Magpie *Pica pica* attacking putty (*Brit. Birds*, 62: 79), for this is a regular habit of this species around Llanfachreth, Merioneth. Indeed, it has been possible to follow the history of the behaviour in some detail because this is a sparsely populated district and all recent instances of new glazing are known. Fresh putty fixed in 1962 and 1963 was not touched. In spring 1964, however, the putty used in glazing a new farm was taken repeatedly by Magpies. The contractor mixed poison (probably a compound of cyanide) with some of his putty, but that was not touched. The putty has since been taken from all new glazings, and even old dry putty is attacked occasionally. The Magpies seem to eat it with relish and, if left undisturbed, they pick the window frames completely clean.

Ordinary putty is made from whiting (chalk) mixed with boiled linseed oil, which is not very different chemically from animal fat. Brown Rats *Rattus norvegicus* have been known to eat stored putty in the Llanfachreth district, and their droppings afterwards closely resemble the original putty. There is a special putty made for metal windows which, I understand, contains lead. In November 1967 Magpies took at least three quarters of a pound of this putty from a window.

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**Song Thrush eating bird faeces** On 10th January 1969, in my garden at Hilperton Marsh, Trowbridge, Wiltshire, I watched a Song Thrush *Turdus philomelos* inspect a fairly large bird dropping adhering to the terrace wall. It then pecked at and swallowed the particles of white matter until the entire faeces had been consumed. A few weeks later, on 18th February, this or a different Song Thrush ate another dropping on the garden wall.

GEOFFREY BOYLE

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**Orphean Warbler in Cornwall** At about 4 p.m. on 22nd October 1967, at Porthgwarra, Cornwall, a bird was extracted from a mist-net by L.P.W. At first sight it resembled a Lesser Whitethroat *Sylvia curruca* but it was quickly realised that it was much too large for this species. We took the following description:

*Plumage:* Crown, back, scapulars and rump dark grey (a 'charcoal' shade). Secondaries and wing-coverts grey with a brownish tinge. Inner primaries dark grey, becoming darker with outer primaries blackish. The grey of the crown merged into black around and below the eye and lores; this was sharply demarcated from the white throat, giving the bird the appearance of a Lesser Whitethroat. Sides and front of upper breast, and also flanks, buff; lower breast and belly white. Under tail-coverts off-white, outer tail-feathers off-white on outer web, dark grey on inner web, and rest of tail dark grey to blackish in the centre, where the feathers were abraded. *Soft parts:* Eye black, surrounded by dark grey iris. Bill blackish, becoming horn-coloured near head, especially on lower mandible. Gape flesh-coloured, becoming dark grey near tip of bill. Black nasal bristles, three long and several shorter. Legs and feet slate-coloured, but latter flesh-coloured beneath. *Wing-formula:* 3rd and 4th primaries equal and longest; 2nd — 5.0 mm, 5th — 1.0 mm, 6th — 2.5 mm, 7th — 8.0 mm, 8th — 10.5 mm, 9th — 13.5 mm, 10th — 17.5 mm; 1st 5.5 mm longer than primary coverts; 3rd, 4th and 5th emarginated. *Measurements:* Wing 79 mm, tail 70 mm, bill 16 mm, tarsus 27 mm, weight 21.5 gm.

In the hand it looked like a large robust *Sylvia* warbler with the same 'staring' eyes and jizz as a Whitethroat *S. communis*. The bird cocked its tail while in the hand on several occasions. We strongly suspected that it was an Orphean Warbler *S. hortensis*, but because the colours of the eye and head differed from the descriptions given in the *Field Guide* and Kenneth Williamson's *Identification for Ringers*: 3 (first edition, 1964) we were uncertain of its identity and therefore released it without a ring. It immediately skulked into cover and was not seen again. No call was heard at any time.

Later that evening, we consulted notes by Dr. K. B. Rooke on an Orphean Warbler trapped at Portland, Dorset, in 1955 (*Brit. Birds*, 49: 180) and by Dr C. H. Fry on eye-colour in this species (*Brit. Birds*, 52: 20-21), and concluded that our bird was also an Orphean Warbler, only the third British record (*Brit. Birds*, 61: 351).

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In the second edition of K. Williamson's *Identification for Ringers*: 3 (1968) the eyes of some Orphean Warblers are said to be entirely dark (J. A. McGeoch, *Ardea*, 51: 248), but at the time of this occurrence this edition was not available. EDS

**Calls of Firecrests on passage** In autumn 1968, at Dungeness, Kent, I usually found that the coarse *zit-zit-zit* call sufficed to identify an unseen Firecrest *Regulus ignicapillus*, but I noted that one taken by surprise would utter a loud and almost explosive *peep-peep*, in tone not unlike one call of the Dunnock *Prunella modularis*, but much higher-pitched. This call, which may be an alarm, appeared to match the loud *sree-sree* of the Goldcrest *R. regulus* in similar circumstances. In late October 1968 I heard another distinctive note from a Firecrest: a melancholy *pee-eeep*, on a descending pitch, which was initially very difficult to distinguish from the calls of the many Robins *Erithacus rubecula* in the area. Several other Firecrests in thick vegetation were subsequently located by this note which was purer in tone and higher-pitched than that of the Robins, though equally plaintive. *The Handbook* describes only the *zit-zit-zit* which H. G. Alexander had rightly noted was often given singly.

M. J. ROGERS

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Dr J. S. Ash comments that the Goldcrest also has a *zit* call which, to his ear, can be indistinguishable from the corresponding call of the Firecrest. EDS

**Song of female Dunnock** Since reading Mrs Margaret K. Jones's note on a female Blackbird *Turdus merula* singing before flying to the nest and Dr Snow's accompanying comment 'it seems that the female sang in a context in which the male also sings' (*Brit. Birds*, 62: 80), it has occurred to me that perhaps females sing more frequently than we suspect. In my garden at Meols, Wirral, Cheshire, a female Dunnock *Prunella modularis* sang from time to time during 1969 when her mate was away. Her song was delivered from the ground or from a branch of a young tree and, on occasions, from the top of a six-foot wall. Once her mate answered and she flew towards him. With practice, it was possible to distinguish her song from the male's: it was shorter and the notes seemed to be arranged differently. I had colour-ringed the birds and was quite certain of their sexes, and so far as I could tell she was a 'normal' female. Courtship and mating were accomplished in the usual way and on 29th March I found a nest with one egg which, however, was subsequently deserted.

Some female Robins *Erithacus rubecula* and Starlings *Sturnus vulgaris* sing when establishing an autumn territory (David Lack, 1965, *The Life of the Robin*, fourth edition: 150-153) and perhaps females generally

are capable of singing in response to certain external stimuli: the urge to go to the nest or surprise at the proximity of observers (Mrs Jones's record), a wish to contact the mate (my observation) or territorial establishment (Robins in autumn). Female Dunnocks and Robins may well sing more often than we suppose owing to the very similar plumage of the sexes.

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## Reviews

**Hawks, Owls and Wildlife.** By John J. and Frank C. Craighead Jr. Dover Publications, New York, 1969. xix + 443 pages; 67 photographs; 15 drawings; 22 maps; 100 tables. 36s.

This long book, first published in 1956 and re-issued unabridged in soft-back in 1969, describes a field study of American predatory birds and their prey. It is based on detailed work in two winters (1941/42 and 1947/48) and three summers (1942, 1947 and 1948), mainly in one township covering 36 square miles in Michigan where the authors claimed they found all raptor and most owl nests. 'Hawks' were counted mostly from a car by a 'strip-census', but, as with owls, also on foot. In addition, winter prey populations in two areas each of four square miles were sampled, and prey items in nests and pellets were identified. Figures are produced for total seasonal numbers of adults, nests and breeding success of raptors and owls, plus estimates of the numbers in the winter prey populations (and their relative sizes in summer) and the proportions killed by raptors. The results are compared with data derived from feeding 29 raptors of eleven species in captivity. Mercifully, a short summary of each chapter is provided.

The book contains a good account of the techniques (and assumptions) used, especially the quick methods for assessing prey density, of the natural history of many raptors, and of the food eaten in relation to what was available. Comparisons are made between a predominantly agricultural habitat in Michigan and a wilderness area in Wyoming. The commonest hawks were three species of buzzards, two accipiters and a harrier, together with five species of owls. The prey taken were mostly voles and mice, but varied from frogs to grouse.

The authors' conclusions depend on their assessments of prey densities. Recent, more intensive, work on voles in Scotland suggests that their main techniques (trap-night indices) produce reliable results, though there may have been a tendency in Michigan to under-estimate vole densities when numbers were high. This would not affect the main conclusions: that mice and voles were abundant in winter 1941/42 and scarcer in 1947/48; that the collective raptor population killed any one prey in direct proportion to its density;

that in summer the total prey was nearly always in excess of the requirements of the raptors; and that changes in the numbers of individual prey species had little effect on the numbers of breeding raptors, whose density was the same from year to year. However, changes in prey numbers over the winter considerably affected the numbers of migrant raptors which stayed when food was abundant but moved on when it was scarce. The authors also suggest that when small mammals were scarce at the end of winter, raptor predation could depress their numbers still further or delay an increase. They claim that in this way the hawks and owls regulated the numbers of their prey. Another proposition is that each winter hunting area could hold only a certain maximum number of hawks, independent of the numbers of each raptor species, although these were not then territorial.

These are important ideas, and the book contains many other interesting facts and propositions. However, it is discursive and repetitive, and it contains too much discussion with facts often confused with speculation. It is sometimes difficult to find the original data and to compare tables so as to assess the conclusions, and there is no mention of modern work (since the first edition in 1956) and modern ideas on predation. Some of these tend to confirm the Craigheads' opinions that predation can sometimes depress prey populations; if relevant modern research had been discussed critically, reprinting a condensed version of the book would have been a more worthwhile proposition.

While the authors' conclusions may be sound, they are based on correlations from only two discontinuous years with no marked birds and no knowledge of other factors affecting the prey populations, and more work is necessary to test them. The scientist may conclude that he would have preferred to see the material better digested in carefully edited papers in scientific journals, leading to further well-planned research, concentrating on carefully defined topics; while it may be difficult for the general naturalist to find the natural history that interests him. This book has attempted to please both but probably satisfies neither. Nonetheless, the task the Craighead brothers set themselves and achieved was fantastic. The results deserve to be known by every keen naturalist and conservationist, and the book is indispensable to anyone working on predation.

DAVID JENKINS

**The Study of Life. An Introduction to Biology: By Gordon H. Orians. Allyn and Bacon, Boston, 1969. 841 pages; copious diagrams, drawings and photographs. \$10.75.**

It is a brave author indeed who can tackle a synthesis of this kind, but the result is a wholly refreshing change from those of the eternal committees. An introduction full of intriguing perspective leads into



three main themes which form the pillars of the work: Evolution, Energy and Information.

This book will be invaluable to all those who have not had access to a recent degree course in biology. The 841 pages range over the whole field of theoretical biology; three pages chosen at random concerned the classification of the major groups of plants, the Huxley model of striated muscle contraction and an account of the fascinating research of Karl von Frisch on the 'waggle dance' of honey-bees. Particularly useful is the strategic inclusion of elementary chemistry and mathematics.

Although the work is well organised, some sections suffer from partition. For example, the cyclic nature of neuro-muscular transmission is lost by the separate treatment of the components and by the exclusion of the function of the muscle spindle. In something of a lapse from the author's commendable detachment we read (in rapid succession) 'no satisfactory general theory of predator-prey interactions has yet been developed', 'there is yet little agreement among ecologists as to the role of predators in controlling the populations of their prey in nature' and 'Ecologists have not been able to agree on what controls even the most intensively studied species'. In fact there is nothing in the text to put such conclusions into perspective and this leaves the unfortunate reader with the impression that ecological theories in these areas are less objective than those concerning, for example, the molecular structure of the membrane, or the function of the enzyme DNA polymerase.

As Dr. Orians says, the solutions to the most important contemporary problems of the human race depend on further knowledge of man—the animal. His book is a notable contribution to this end, especially for students (including many ornithologists) who are weak on basic life processes.

G. R. POTTS

## News and comment *Robert Hudson*

**Importation of raptors** The importation into the United Kingdom, except under licence, of all birds of prey (orders Falconiformes and Strigiformes) has been prohibited since 30th June. The Home Secretary has made an Order to this effect under the Protection of Birds Act 1954. Licences for live importations of raptors (including owls) into this country may be granted, but only for scientific, educational, avicultural or falconry pursuits. These restrictions have been imposed in the interests both of international conservation and the welfare of the birds. During recent years there has been a general worldwide decline in numbers of raptors, and special protective measures are needed; this Order will assist those foreign countries trying to enforce bans on exporting these birds. The effect of this new Order should be to eliminate commercial importation for the 'pet' trade. We trust that applications for licences are severely scrutinised to ensure that only legitimate aviculturists and falconers can obtain birds.

**Threat to the Pink-footed Goose** Apart from small populations in Greenland and Spitsbergen, the breeding grounds of the Pink-footed Goose are confined to Iceland, where the major concentration is on the Thjörðsärver in the mountainous interior. The terrain is well described by Peter Scott and James Fisher in *A Thousand Geese* (1953), the popular account of the Wildfowl Trust's major expedition there in 1951. But now the Thjörðsärver is threatened, along with its avifauna, by a hydro-electric scheme involving a dam across the River Thjörðsá with consequent flooding of the area. If this project reaches fruition, its effect on the world population of Pink-footed Geese would be extremely serious. The World Wildlife Fund has urged the Icelandic Government to reconsider the scheme; one can but hope that in European Conservation Year this plea will fall on sympathetic ears.

**Birds and Estuaries' Enquiry** Last year the British Trust for Ornithology and the Royal Society for the Protection of Birds launched the pilot study of an estuarine bird survey; some 110 estuaries were examined and their birds counted during the period August 1969 to April 1970. Reclamation and development schemes, whether designed for agricultural, industrial or holiday industries, are causing direct loss of habitat in a growing number of estuaries. This B.T.O. and R.S.P.B. Enquiry is designed so that ornithologists can document as fully as possible the comparative values of our estuaries as passage refuges and wintering grounds for wildfowl, waders and gulls prior to any development proposals. The Estuaries Enquiry will last five years, using the 1969/70 results as a baseline; the next season for counts is August 1970 to April 1971. A full-time organiser, A. J. Prater, has been appointed; he will operate from the B.T.O. headquarters, Beech Grove, Tring, Herts. Offers of assistance are invited. Some preliminary results will be published in the next number of *B.T.O. News*.

**Institut ECHO** The Centre International pour la Publication Sonore Ornithologique, (04) Aubenas-les-Alpes, Haute Provence, France, is probably the most important European centre for recording and publishing bird-song on discs. It operates at two levels: (i) producing popular records of bird-song for sale through normal commercial channels in record shops; and (ii), under the name Institut ECHO, issuing scientifically orientated discs for sale direct to ornithologists. The important sets of discs *Sound Guide to the Birds of Southern Europe* and *Sound Guide to the Maghreb* (northern Africa) have previously been mentioned in 'News and comment' (March 1967, August 1968). Institut ECHO is now working on a new sound guide to the birds of northern Europe (Iceland to the U.S.S.R.), covering 220 species, and it hopes that this will be available by the end of the year. Prices for these *Sound Guide* discs, and lists of the species treated, are supplied by the Director, Institut ECHO, at the above address. We make no apologies for repeating these details, for not only has the sales address changed since the earlier 'News and comment' references, but we feel that this Continental organisation should not be overlooked (as it tends to be in this country) in the present upsurge of interest in bird-song recordings.

**50th anniversary of Gilbert White** The Reverend Gilbert White, curate of Selborne, Hampshire, holds a special place in the affections of British naturalists. The 250th anniversary of his birth on 18th July was marked by the establishment of a special memorial to him. With the help of the Conservation Corps, the garden beneath the hanger at his former home (The Wakes, Selborne) is being restored and replanted, and thereafter maintained by a permanent endowment fund. This is a fitting memorial to one who, in his own words, professed 'to be an outdoor naturalist, one that takes his observations from the subject itself, and not from the writings of others.'

## Recent reports *P. F. Bonham*

**These are largely unchecked reports, not authenticated records**

This summary of passerines and near-passerines concludes the records for April 1970 and, unless otherwise stated, all dates refer to that month. The previous analysis (*Brit. Birds*, 63: 142-144) covered almost all the non-passerine groups and also briefly summarised the main arrivals of many of the commoner summer-visitors. The most obvious feature was an extensive influx of southern vagrants and several large 'falls' of migrants between 16th and 19th. Among these southern vagrants were a **Red-rumped Swallow** *Hirundo daurica* at Beachy Head (Sussex) on 18th, a **Western Black-eared Wheatear** *Oenanthe hispanica hispanica* on Bardsey (Caernarvonshire) on 18th and at least seven **Alpine Swifts** *Apus melba*, including one or two in Dorset, three or four in Cornwall, one in Gloucestershire, another in Yorkshire and one as far north as Rattray Head (Aberdeenshire), a quite exceptional influx. **Hoopoes** *Upupa epops* appeared in the Isles of Scilly, Devon, Sussex, Surrey, Norfolk (four) and the Isle of Man on scattered dates from 11th to 27th, and the **Wallcreeper** *Tichodroma muraria* (see page 163) was apparently last seen on 18th. A **Serin** *Serinus serinus* was reported from Hersham (Surrey) on 21st.

About 25 reports of **Turtle Doves** *Streptopelia turtur* and **Whinchats** *Saxicola rubetra* showed a small peak about 26th. The first Turtle Dove, however, was reported from Wollaton Park (Nottinghamshire) as early as 2nd. **Nightjars** *Caprimulgus europaeus* and **Wrynecks** *Jynx torquilla* were much scarcer: only one of the former, at Hollingbourne (Kent) on 21st, and two of the latter, at Ansty (Sussex) on 20th and in Kent on 27th.

As in 1969, the first **Savi's Warbler** *Locustella luscinioides* was reported at the Kent breeding site on 19th, and one stayed on the Suffolk coast from mid-April well into May. The first influxes of **Lesser Whitethroats** *Sylvia curruca* and **Wood Warblers** *Phylloscopus sibilatrix* were not until the warm weather in early May, but a few appeared in the Midlands and south during the last week of April, and early Wood Warblers were also reported from Beckenham (Kent) on 16th and Harlow Wood (Nottinghamshire) on 20th. **Spotted Flycatchers** *Muscicapa striata* were scarce until the middle of May, so singles in Kent and Radnorshire on 18th and Nottinghamshire on 19th were particularly early. The only others reported in April were two in Herefordshire, one at Cambridge and one in Northumberland. **Pied Flycatchers** *M. hypoleuca* were scattered evenly, though very thinly, from 18th to 30th, reports coming from twelve counties north to Derbyshire and west to Devon and mid Wales, and the sole **Red-backed Shrike** *Lanius collurio* reported were a pair at the East Swale (Kent) on 18th and one near Ravensthorpe Reservoir (Northamptonshire) on 26th.

**Black Redstarts** *Phoenicurus ochruros* were reported from some 25 localities, mainly in the south-east and on the east coast north to Fair Isle (Shetland). **Firecrests** *Regulus ignicapillus*, which were less numerous, were confined to the eastern counties from Sussex to Yorkshire; passage reached a peak about 18th when there were eight at Dungeness (Kent). One in Kensington Gardens (London) on 31st March and the same or another there on 16th April are also worth mentioning, as is a **Richard's Pipit** *Anthus novaeseelandiae* at Reading (Berkshire) on 30th March.

Small flocks of **Shore Larks** *Eremophila alpestris* lingered on the east coast during the cold weather of early April, for example up to twelve at Donna Nook (Lincolnshire) and Whitburn (Northumberland) and 25 at Teesmouth (Co. Durham/Yorkshire); several parties of up to ten were still present at the end of the month. Four **Great Grey Shrikes** *Lanius excubitor* were noted on Fair Isle during 11th-16th, and five singles elsewhere up to 18th, while more surprising was a **Bearded Tit** *Panurus biarmicus* at Spurn (Yorkshire) on 11th.

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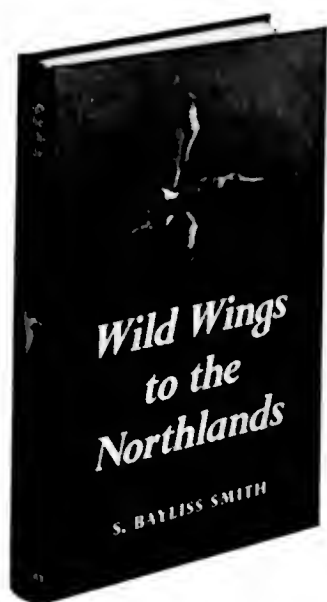
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# *British Birds*

## Observations on a decreasing population of Red-backed Shrikes

J. S. Ash

### INTRODUCTION

(One of the last relatively densely populated breeding outposts of the Red-backed Shrike *Lanius collurio* in Britain was to be found until recently on large areas of heathland in Hampshire. Over 60 pairs still bred there within the last ten years.

The great decrease in this species, formerly widespread in the southern two-thirds of England, has been reviewed by Peakall (1962) and Parslow (1968), who showed that the Hampshire population formed the largest remaining concentration. This decrease is part of a wider one affecting Red-backed Shrikes throughout north-west Europe (Durango 1950, Peakall *loc. cit.*). Quite fortuitously in 1954 I came upon a pair feeding nestlings in a shallow valley containing gorse brakes and scattered hollies and thorns. As this site was typical of much of the area, a wider search revealed a total of four pairs within a square mile. In subsequent years, as far as spare time allowed, the area of search was increased and many more pairs were located. The main aim throughout was to plot the distribution of the pairs in the area—a total of approximately 162 square miles with the most intense study concentrated in 23.2 square miles of this—and to obtain other information which might be relevant to population changes in the little time remaining. The interest of many other observers was aroused, which added to the numbers found and in some cases provided additional information on nests. In 1961 and 1966 co-operative surveys were organised with C. R. Tubbs of the Nature Conservancy and a team of voluntary helpers covered the area. Their observations have been incorporated with my own and the people concerned will be acknowledged individually at the end of the second part of this paper.



## HABITAT

This area is almost entirely on the Plateau Gravel, Bagshot Sands, Bracklesham Beds, and Barton Clay and Sands. It is typical of much of the once great Wessex heathland, and shrikes occurred wherever suitable nesting sites existed on all the above formations. They were almost entirely confined to the following main habitat types: (a) open *Calluna*/*Erica* heathland, whether flat, undulating or with shallow valleys, almost invariably supporting a flourishing growth of gorse *Ulex* and often with scattered, naturally regenerated pines *Pinus* and/or holly *Ilex*; (b) the margins of streams, where more or less dense growths of blackthorn *Prunus spinosa*, hawthorn *Crataegus*, willow *Salix* and various other shrubs occur, intermingled with tangles of wild rose *Rosa*, bramble *Rubus* and so on; and (c) much less often, young plantations of conifers or hardwoods, usually with a dense underlayer of bramble or gorse.

Most pairs occurred close to water, either streams or marshy areas, and it might be argued that these sites are chosen for their better food supply. In this particular region, however, there are extremely few potential nesting sites which are not close to water, and certainly some of these were occupied.

## PLOTING PAIRS

Plotting pairs was time-consuming and often difficult, as Red-backed Shrikes can be most elusive. I was out of the area for part of the breeding season each year, so that some important periods were missed; most of my absences were in May when pairing shrikes are most conspicuous.

As soon as egg-laying had begun, and later during incubation, these shrikes became extremely inconspicuous. Two examples serve to illustrate this point. In an area of about half a square mile, containing two shallow valleys and much scattered cover of gorse, holly and blackthorn, a careful search on two occasions resulted in the discovery of one pair; later, while this pair was being watched, no fewer than three more pairs were located within about an hour and all their nests found. In another season I regularly passed a small patch of holly which had held a pair of shrikes in the previous year. I always scrutinised it, but saw nothing until my sixth visit when I found a male shrike sitting conspicuously on the top of a bush only a few yards from his nest containing half-grown young.

While waiting for individual males to return to nests with food for females or nestlings, I have sometimes known one to sit quietly on the same inconspicuous perch, sometimes well within a bush, for as long as 90 minutes. At other times, feeding flights are extremely infrequent. Thus, unless these particular perches are visible to an observer, even very long searches through binoculars may be fruitless.

Over the years I have found a number of nests before even seeing the birds, by first locating regular shrike perches, as evidenced by the faeces and pellets below them. Birds in mimetic posture (page 195) must often be overlooked.

#### DISTRIBUTION

The total area involved in this study was 162.2 square miles. Some parts of this were covered only as time allowed, but supplementary information was provided by other observers. More detailed work was carried out in two adjoining areas included in the total, A and B, amounting to 23.2 square miles (see fig. 1). Thus the remainder, referred to as area C, comprised 139 square miles. Areas A and B were covered fairly systematically in the eight years 1956-62 and

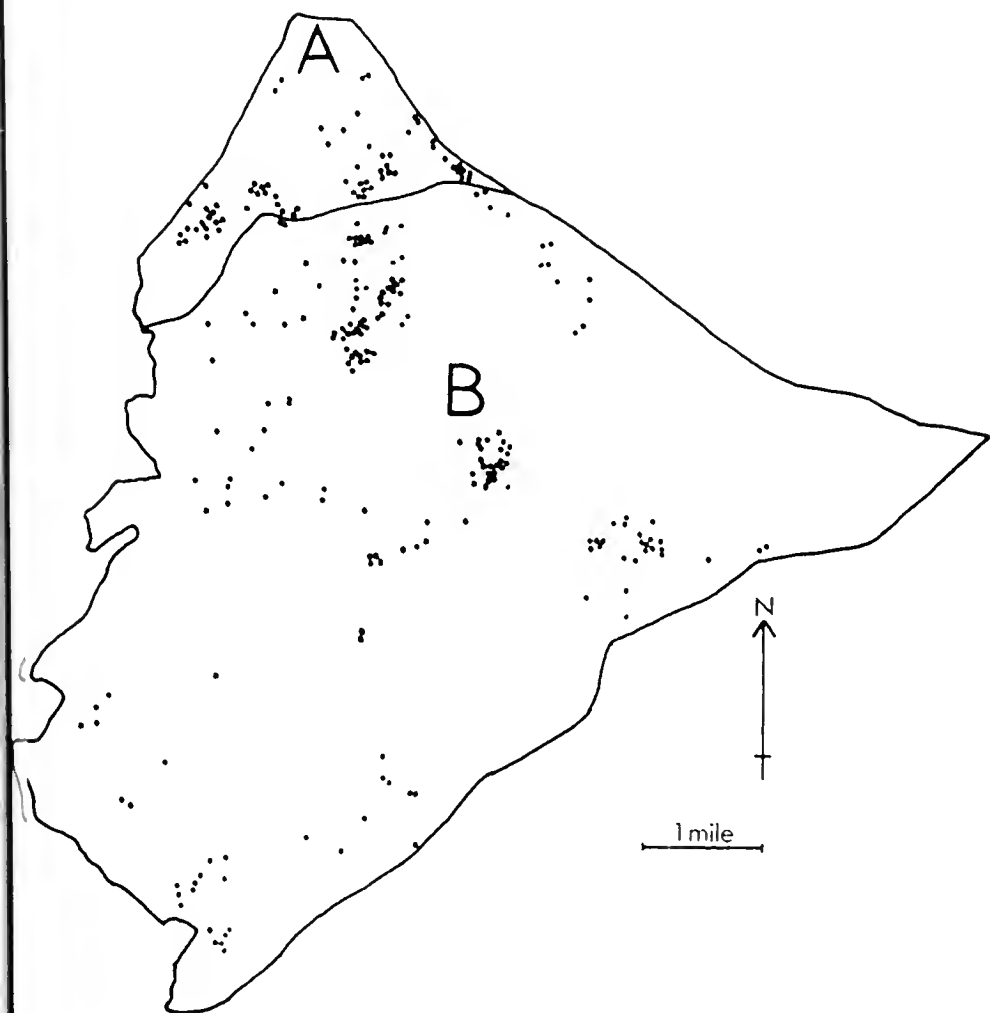


Fig. 1. Breeding territories of Red-backed Shrikes *Lanius collurio* in part of Hampshire (areas A and B) during 1954-66

Table 1. Numbers of pairs of Red-backed Shrikes *Lanius collurio* in each of the study areas (A, B and C) in Hampshire during 1954-66

Areas A and B are shown in fig. 1 and area C is discussed on page 187. The figures in bold type are comparable from season to season, but the others are incomplete

Year	A	B	C	TOTAL	Year	A	B	C	TOTAL
1954	—	10	5	15	1960	5	27	29	61
1955	2	12	14	28	1961	11	19	27	57
1956	8	18	25	51	1962	13	13	7	33
1957	6	24	38	68	1964	—	3	—	3
1958	2	26	29	57	1965	6	8	—	14
1959	3	24	3	30	1966	12	11	8	31

1966, but area C was covered with similar thoroughness only in the five years 1957, 1958, 1960, 1961 and 1966.

The numbers of pairs of shrikes found in each area are listed in table 1, where the figures shown in bold type are comparable between areas or seasons. Fig. 1, on which are marked the 267 known territories in areas A and B, illustrates the high degree of concentration of pairs suggesting colonial grouping. This may occur in relatively small areas, when at the same time apparently equally suitable habitat is unoccupied. The area of potential breeding habitat, admittedly

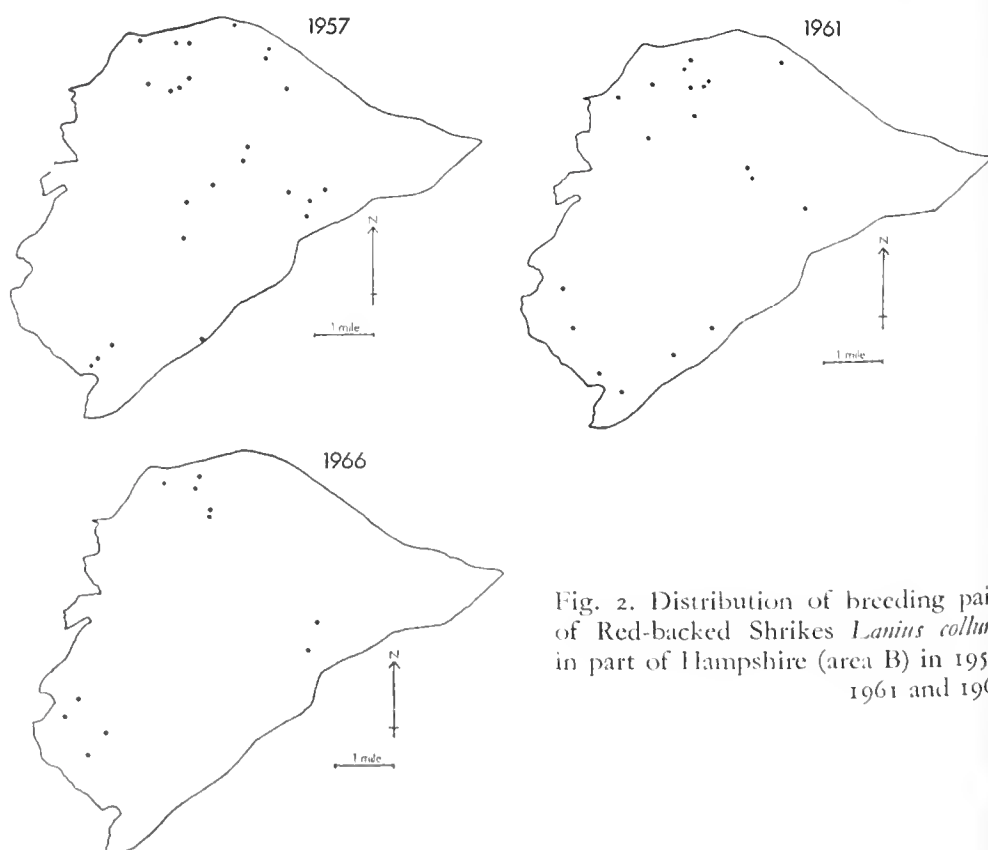


Fig. 2. Distribution of breeding pairs of Red-backed Shrikes *Lanius collurio* in part of Hampshire (area B) in 1957, 1961 and 1966

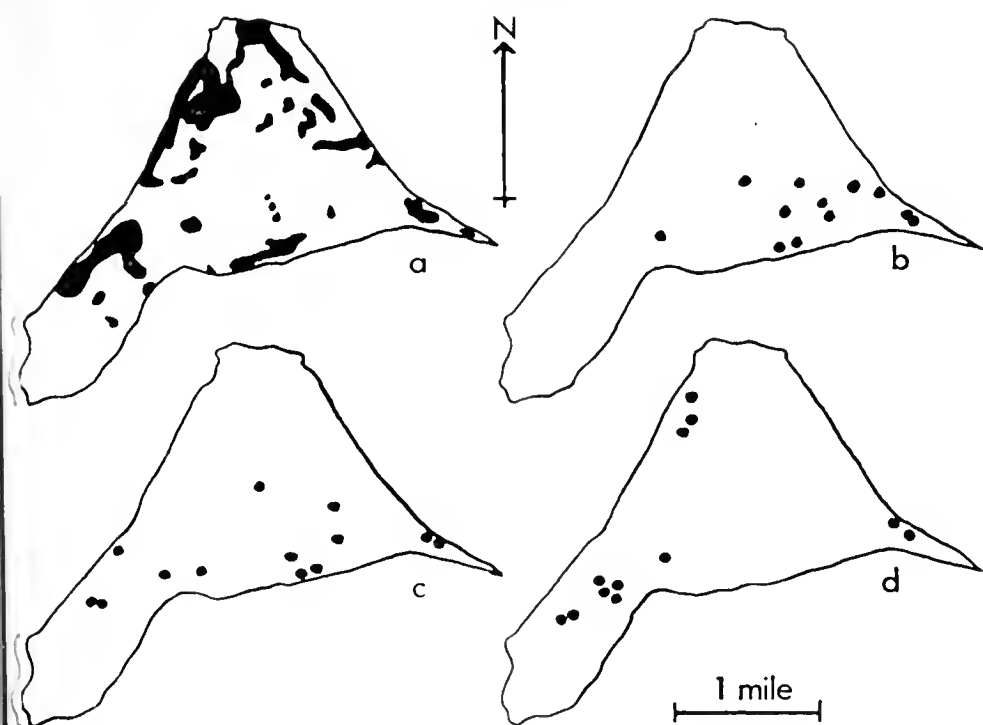


Fig. 3. Distribution of breeding pairs of Red-backed Shrikes *Lanius collurio* in part of Hampshire (area A): a, breeding habitat in 1961; b, breeding pairs in 1961; c, breeding pairs in 1962; d, breeding pairs in 1966

estimated subjectively after several years' experience, amounted to 7.6 square miles (32.8%) of areas A and B (see fig. 3a for area A).

Figs. 2 (area B) and 3 (area A) illustrate the regularity with which the same areas are reoccupied in successive years. Several groups or territories were occupied in each of five or more seasons, although, as will be shown later, there must be considerable interchange between the colonies from year to year; sometimes, inexplicably, a 'popular' area is suddenly deserted, or the population level fluctuates greatly. There are several examples of this, one being in the lower central area in fig. 3 where there were seven pairs in a fairly discrete colony in 1961, six in 1962 and none in 1966. Only four pairs were found in habitats which were not considered to be typical. One of these four was at the edge of an area of well-spaced mature pines bordered with dense, naturally regenerated ones. The others were at the edge of deciduous woodland, where dead bracken covered old stumps.

In considering the breeding population changes over the whole area, there was a marked decline in 1966 to 31, which represented a 49% drop from a mean of 61 pairs over the four years 1957, 1958, 1960 and 1961. This was probably evidence of a real decrease rather than merely a low year in a longer-term fluctuation. Nevertheless, the decline was not uniform throughout the whole district: it was most



conspicuous within area C and rather less in area B, while in area A there was actually an increase. This progressive withdrawal from the south-east is also shown in figs. 2 and 3, particularly in the latter where, in spite of the increase in area A, there has been new colonisation and concentration in the western sector.

Calculated in terms of number of breeding pairs per square mile of suitable habitat, there were 3.0 pairs per square mile in areas A and B at their lowest level, in 1966, and 4.2 at their peak, in 1960.

## FEEDING

### *Larders*

The Red-backed Shrike's habit of forming larders is well-known. Prey which is not normally required immediately is stored by being impaled on a thorn, spike, barbed wire, or some other such pointed object. Descriptions can be found in the literature of well-stocked larders containing a wide range of species. Such a larder was never found in the present study. At the most, four or five items could be found scattered about in the same bush, and further search might reveal an additional six or seven on neighbouring bushes. Even these numbers were exceptional, however, and I usually failed to find any trace of impaled prey within the whole territory of a pair of shrikes.

Usually larders seem to be formed by the males, and females have never been seen to impale prey except as an aid to dismembering it; only once was a female seen to remove a previously impaled item from a larder. This last was one of a pair feeding young which had just left the nest on a cold wet day; food was apparently in short supply and the hen was seen on one occasion to remove an impaled bumble-bee *Bombus* which she promptly ate herself, whereas previously she had been giving all fresh caught food to the juveniles. Cocks were often seen eating food from larders.

The prey items most frequently found in larders have been species of *Bombus* and dung beetles *Geotrupes*, which may have been the main food supply of shrikes in this area. The abundance of *Geotrupes*, of which any eventide mist-netter is soon aware, is probably associated with the large amounts of faeces from domestic animals on the heath-land. Other items found in larders have included a large dragonfly *Cordulegaster boltonii*, an immature lizard *Lacerta* sp., an adult male Linnet *Acanthis cannabina*, a fledgling Yellowhammer *Emberiza citrinella* and a Common Shrew *Sorex araneus*.

### *Methods of feeding and catching prey*

Feeding shrikes usually sat quietly on exposed perches watching for passing prey. It was only on particularly windy days that perches were sought on the lee-side of bushes. Much prey was taken on the ground, usually within a radius of 20 yards of the bird's perch. The same perch

might be used for up to half an hour, but more usually a round was made of favourite sites. On attacking prey, a shrike usually made a few rapid wing-beats, and planed the last few feet before making an attempted capture. Most insects were caught in the bill. If ground prey was not immediately visible on reaching the spot, the bird often hovered overhead for short periods in attempts to relocate it.

Flying prey may be sighted at long distances. It often surprised me that a shrike was able to see a bee or beetle, for example, flying perhaps 100 feet overhead against a background of clear blue sky. Such prey is taken in a steeply ascending flight, often followed by quite long chases after rapidly fleeing quarry. After these flights the return to the look-out perch is usually made in a series of spectacular steep undulations. Sometimes there was competition between birds of a pair for food. For example, on one occasion a pair was hunting together for food for their young. Soon after the hen took off in pursuit of a high-flying beetle, the cock also left his perch to pursue it, and arriving from a different direction he caught their mutual quarry a short distance ahead of her. He returned to his perch and there ate it. A few minutes later, the male caught a large larva of the Emperor Moth *Saturnia pavonia*, but, before he had time to feed, his mate pounced down, grasped it firmly, and after a prolonged struggle managed to tear the caterpillar away from him. She then flew off and ate it undisturbed.

Smaller items of prey are eaten piecemeal, larger beetles and bumblebees usually being held under one or both feet on a firm perch and eaten bit by bit. Larger objects, such as small birds and small mammals, dragonflies, and sometimes the larger beetles and bees, are almost invariably impaled first. Once a female was watched hopping about the outside of a large hawthorn bush picking off various small insects and green larvae.

One female brooding young apparently saw the cock catch a moth, for she immediately flew from the nest, took the moth from him and returned to feed it to the young. The cock immediately caught another moth which he then took to the young. On other occasions males tore strips of flesh from impaled birds and fed them to nestlings and juveniles. When such corpses were placed in Chardonneret traps they provided a ready means of catching adult shrikes. Another male impaled a shrew by its head and started to feed by first delicately removing the brains through the back of the skull. The only dragonflies I have seen taken have been *Anisoptera*, normally transported in the bird's claws. Shrikes present a very odd appearance when flying with a dragonfly held in downstretched claws and lying along the axis of the bird's body. Both sexes were particularly inept at catching the swift and erratically flying Fox Moths *Macrothylacia rubi*, which frequently required repeated attempts before successful capture.

Just before visiting one nest containing four three-day-old nestlings which the hen was brooding, a cock shrike was seen to fly in with a moth. On examination a Beautiful Yellow Underwing *Anarta myrtilli* was found in the throat of one of the young.

Whilst incubating or brooding, much of the female's food was brought to her by the male, and even when she left the nest to feed herself the male continued to bring food to her. Much of the food for chicks or females was collected close to the nest, but when feeding themselves cocks would wander up to 300 yards away. There is no information about either the frequency or the duration of the times when the female left the nest to feed, but one constant feature of many hens was to come off to feed, defaecate and preen just before sunset. They also sometimes left their nests to take insects flying past.

Both sexes shared the task of feeding the nestlings in the later stages, but sometimes the cock passed food to the hen to take to them, or when she was brooding passed the food to her to feed to the young. In the earlier nestling stage most of the food was collected by the cock. Occasionally he would call the hen off the nest to give her food, either for herself or to give to the nestlings.

### *Food*

No systematic attempt was made to identify items of prey, but the following species were recorded. MAMMALS—Common Shrew *Sorex araneus*. BIRDS—Whitethroat *Sylvia communis*, adult female; Linnet *Acanthis cannabina*, adult male; Yellowhammer *Emberiza citrinella*, juvenile. REPTILES—lizard *Lacerta sp.*, immature. INSECTS—Odonata: dragonfly *Cordulegaster boltonii*. Lepidoptera: Beautiful Yellow Underwing *Anarta myrtilli*; Fox Moth *Macrothylacia rubi*, also fed to nestlings usually, but not always, after dealation; Emperor Moth *Saturnia pavonia*, larva. Coleoptera: dung beetles *Geotrupes sp.* Hymenoptera: bumblebees *Bombus terrestris*, *B. lucorum* and *B. lapidarius*.

### *Food abundance*

In an attempt to assess the abundance of food in different habitats and in different weather conditions, sample counts were made of the number of large insects crossing the field of a fixed pair of 10 × 30 binoculars. The two areas selected for this investigation in 1965 were both flat open sites, on one of which there was a low density of shrikes and on the other a high one. Observations were made in such a way that insects flying just above the vegetation appeared in the bottom of the optical field. Under good weather conditions there were five times more insects in the high population area than in the low, and in both areas there was only about one-tenth the number in poor weather (table 2). These figures are totalled samples undertaken in afternoons and evenings in the first half of July.

Table 2. Counts of large insects in two areas of Hampshire in 1965, one with a high proportion of Red-backed Shrikes *Lanius collurio* and the other with a low one, each sampled in good and poor weather conditions

The habitat with the high population consisted of heather *Calluna*, gorse *Ulex* and grass in the ratio 1:1:1, while that with the low population consisted of heather, gorse and bracken *Pteridium aquilinum* also in the ratio 1:1:1. The good weather conditions were warm ( $>60^{\circ}\text{F}$ ) and sunny with light winds, and the poor were cool ( $<60^{\circ}\text{F}$ ), overcast, wet and often windy

Population level	Weather conditions	Minutes counted	Number of insects	Insects per minute
High	Good	150	1,010	6.7
High	Poor	150	87	0.6
Low	Good	160	212	1.3
Low	Poor	35	4	0.1

Reduced abundance of food does not necessarily imply reduced availability, but the characteristic inactivity of shrikes in poor weather suggests that this may be the case. Besides aerial feeding, shrikes also take much food on the ground and on vegetation, but probably the activity of several important prey species such as bumble-bees and dung-beetles is also reduced in poor weather when they are not flying. It can be concluded tentatively, therefore, that food is less available, even if not less abundant, in poor weather.

#### BEHAVIOUR

Observations on display were very limited, and no systematic study was made. The so-called 'mimetic posturings' have been described elsewhere (Ash 1956).

#### Sexual display

The usual sexual display by the male involved violent wing-shivering as he flew or hopped from perch to perch in close proximity to the female. This is very like, only much more frenzied than, the food-begging posturing of the hen. Coition normally followed on a low perch close to the ground, which may be why it was seen so infrequently. This display occurred spontaneously at times upon the sudden appearance of the female, and once after a hen had repeatedly begged for food from her mate. Lower intensity display, when the male bows before the female, is described in *The Handbook*.

Although food-begging by the female was usually accompanied by wing-shivering as, like a juvenile, she adopted a crouched attitude with open bill, this was not always so. Very often as the cock caught an item of food, the hen flew directly to him and received the gift without any precursory display. At other times the cock took food to the hen and then she sometimes postured as he approached.



*Reactions to predators and other intruders*

Stuffed Cuckoos *Cuculus canorus*, Jays *Garrulus glandarius*, a Barn Owl *Tyto alba* and a Great Grey Owl *Strix nebulosa* were used when netting adult shrikes, whose reactions to these were usually violent. The males were always the more aggressive. However, although their ability to see flying predators at very great ranges was extraordinary, it was surprising how often they overlooked static stuffed ones. Nevertheless, once a shrike had seen a stuffed bird it would usually swoop at it silently and immediately with rapid flight, sometimes striking it from above. After this first attack the male would often begin a frenzied 'chacking' accompanied by violent tail-swishing; if the female was off the nest she would often join in, but in a more subdued manner and at a greater distance. The stuffed Barn Owl produced little reaction, but a stuffed Jay or Cuckoo was continually attacked and struck, and could soon be dismembered. Between attacks, persistent 'chacking' and tail-swishing continued. Interest quickly waned if the stuffed bird was knocked down, and only intermittent 'chacking' followed. Females commonly returned to incubate or brood with stuffed Cuckoos sitting in full view a foot or so away. Probably the reactions of females varied, depending on the stage of development of the eggs or young, but more observations are needed.

At the distant approach of a Sparrowhawk *Accipiter nisus*, or if the distant alarm calls of tits *Parus spp* were heard, cock shrikes were seen to 'freeze' on their perches. As the predator approached, a few quiet 'chacks' were uttered, followed by a rapid dive into the interior of the bush. On one occasion a continuous loud 'chacking' was heard from a cock shrike, and on closer approach he was found perched about 20 yards from a resting adult female Peregrine *Falco peregrinus* on the edge of his territory. The shrike's calling was accompanied by the typical tail action—violent swishing—alternating with the bird bowing forward and cocking his tail vertically upwards like a Robin *Erithacus rubecula*.

Larger predators were usually mobbed at a distance, although a stuffed Great Grey Owl placed in the territory of one pair, which had a nest containing half-grown nestlings, provoked intense aggression. This was mobbed repeatedly by the cock, who dived upon it and struck its head each time in passing. Although the hen swooped towards it, she never approached closer than 15 yards. Both birds tail-swished and 'chacked' continuously.

Most birds, up to the size of a Mistle Thrush *Turdus viscivorus*, entering a shrike's territory were promptly driven out by the cock, and any breeding near-by were continually harassed. When any bird of this size happened to fly close past a perched shrike it was greeted with an aggressive posture—not unlike the mimetic posture referred to below—in which the intruder was directly faced in a stiffly crouched

attitude. Foxes *Vulpes vulpes* and dogs *Canis* were followed with an outcry of 'chacking', accompanied by tail-swishing; other domestic animals and deer (Cervidae) were ignored.

Shrikes reacted to the approach of a man in various ways. Sometimes the bird(s) quietly disappeared, even after the young had left the nest; but more often at this stage one or both 'chacked' noisily with much tail-swishing. This action, symptomatic of alarm and aggression, is caused at an early stage, and even juveniles with barely enough tail to swish responded in this way.

### Bathing

Although no shrike was ever noted bathing in water, a very wet male was once seen on a dry evening when it could hardly have got so wet in any other way. During rain they sometimes sat on exposed perches ruffling and shaking their plumage, and following up these actions by preening. They also commonly brushed against rain- or dew-soaked foliage, and this appears to be the usual method of bathing. This behaviour, which is described well by Owen (1947), has also been observed in Corsica where I watched a migrant early one morning bathing in dew-soaked vine leaves.

### Mimetic posturing

A type of mimetic posturing, in which a shrike bears a remarkable resemblance to a dead branch, has already been described in detail ((Ash 1956). This appears to be a modification of the threat posture adopted towards possible predators. Whether or not by design, this posture certainly renders an approached shrike extremely inconspicuous, and it could very easily be overlooked. It has been recorded on a few occasions each year since it was first noted, but it is not possible to say that it is a regular feature of shrike behaviour.

### Song

Song was only rarely recorded. This may be due in part to the fact that there was relatively little observation of shrikes prior to incubation of their first clutches, and also because much watching has necessarily been at long range or from a car used as a mobile hide. The pleasant and prolonged song which is associated with birds on the Continent was never heard.

The following two examples give some indication of the type of song heard. On 30th June 1957, an exceptionally hot and oppressive day, the cock of a pair with a nest containing half-grown young sang frequently when resting between visits to the nest with food. The song consisted of a succession of scratchy notes intermingled at times with some sweet, rather Linnet-like song, and it continued to sing whilst the female was being caught and ringed. On 18th July 1959,

as I watched from a hide at a nest containing young about nine days old, both adults became greatly agitated and 'chacked' continually for about an hour. As soon as this subsided one of the birds, apparently the female, began to sing a sweet medley reminiscent of a Song Thrush *Turdus philomelos* and the trill of a Skylark *Alauda arvensis*.

A male has also been heard singing short bursts of song between displaying to and feeding a female, but sexual display has been noted on other occasions entirely unaccompanied by song.

#### PLUMAGE AND DEFORMITIES

##### *Plumage characters as a guide to age*

*The Handbook* (1: 295) states that females in their first summer can be distinguished from older birds 'in having varying number of feathers of upper-parts, wing-coverts, and inner secondaries with black concentric bands narrower than in first winter'. This is not a reliable character, however, for known first-summer females were handled in which these characters were absent, and a known second-summer hen possessed them. No reliable method was found to distinguish age in either sex.

##### *Abnormal plumage*

The plumage of the males was remarkably constant, and the only character which varied slightly was the amount of pink on the under-parts. F. R. Clifton recorded a very drab, washed-out-looking male in the same territory in two successive seasons. Females were much more variable, and the plumage of one found by R. Elmes approached that of a male. The amount of barring on the breast varied, as did the shade of the dark patch on the ear-coverts. Some had varying amounts of greyness on forehead and crown, and others varied in the amount of redness on the mantle: very rarely this was uniform brick-red. These characters in adults seemed to be independent of age. One exceptionally dark female caught had a very grey rump, an unusual amount of barring on the mantle, and an extremely well-defined dark patch behind the eye.

##### *Deformities*

The only deformity noted was in a brood of three nestlings ringed by F. R. Clifton. One of these had its lower mandible out of alignment.

#### ECTOPARASITES

Ectoparasitic flies of the family Hippoboscidae were seen on many occasions on nestlings, juveniles and adults. None was collected but most were small dark *Ornithomyia*, probably *O. lagopodis*. Dipterous larvae, probably *Protocalliphora azurea*, were twice found attached to nestlings in 1961: a brood of five nestlings six days old found dead in

their nest on 12th June, after strong wind and rain, had 21 larvae attached to their under-parts; on 15th July, after two days of gales and heavy rain, a nest of three dead nestlings contained three larvae and a further two attached to one chick.

#### RESULTS FROM RINGED BIRDS

No less than 593 shrikes (69 adults, 13 juveniles and 511 nestlings) were ringed during the study and a number of these were retrapped in later seasons. At least a further 112 (13 adults, 13 juveniles and 86 nestlings) were ringed by other people in the area in the same period, but these did not produce any controls in subsequent years.

#### *Migration*

It is surprising that there was only one overseas recovery: a nestling ringed on 17th June 1960 was found mummified on 6th November 1960 at Schwangau, Bavaria, 570 miles ESE. It is interesting that this recovery was along the line drawn from central southern England to Kos in the Dodecanese, Greece, where the last British-ringed Red-backed Shrike to be found abroad was recovered (Spencer 1959). These records indicate the south-easterly route followed by this species.

#### *Juvenile dispersal*

A nestling which R. J. Jackson had ringed in the area on 14th June 1959 was found dead 45 miles to the north 45 days later, and is interesting in indicating a relatively long dispersal movement from the breeding area prior to migration. One other bird was retrapped near its nest 36 days after it was ringed as a nestling.

#### *Return in subsequent seasons*

Ringed as nestlings: among the 16 retraps given in table 3 are eight males and eight females; eleven were caught in their first breeding season (one of them again in the same territory in the following season), two were caught in their second, two in their third and one in its seventh. The distance between the nests they were reared in and their breeding territories varied from half a mile to  $9\frac{1}{2}$  miles. It is probably not significant with this small sample that females moved further than males. Retraps h, i and j are interesting in that they involved three birds ringed as nestlings (two from the same brood) from broods in adjacent territories, which made up part of two pairs occupying adjacent territories in their first breeding season. Raynsford (1964) has recorded a case of brother and sister of this species mating in Surrey. Many untrapped ringed breeding birds were seen, so that more intensified retrapping would have provided interesting data.

Ringed as breeding adults: retraps in subsequent years of shrikes



Table 3. Return in subsequent seasons of Red-backed Shrikes *Lanius collurio* ringed as nestlings, Hampshire, 1954-66

Ref	Year ringed	Retrapped breeding	Miles away	Sex	Remarks
(a)	1955	1956-57	6 $\frac{1}{4}$ SSE	♀	
(b)	1955	1956	$\frac{1}{2}$ WSW	♂	
(c)	1956	1957	2 $\frac{3}{4}$ NNW	♂	
(d)	1956	1957	6 $\frac{1}{2}$ WNW	♂	
(e)	1956	1957	1 $\frac{1}{4}$ S	♀	
(f)	1956	1957	9 $\frac{1}{2}$ SSE	♀	
(g)	1959	1960	1 $\frac{1}{2}$ SW	♂	
(h)	1959	1960	1 $\frac{1}{2}$ SW	♀	Paired with (i)
(i)	1959	1960	1 $\frac{1}{2}$ SSW	♂	From same brood as (j), paired with (h)
(j)	1959	1960	1 $\frac{1}{2}$ SSW	♀	From same brood as (i)
(k)	1958	1961	3 $\frac{1}{8}$ SW	♀	From same brood as (l), paired with (m)
(l)	1958	1961	$\frac{3}{4}$ NNW	♂	From same brood as (k)
(m)	1959	1961	1 $\frac{1}{4}$ WNW	♂	Paired with (k)
(n)	1960	1961	$\frac{3}{8}$ SSE	♀	
(o)	1959	1966	1 $\frac{1}{4}$ NW	♂	

ringed as breeding adults (table 4) included one bird (r) that returned the following year to the same territory. A male (p) at least six years old, paired with a four-year-old female (s), were both in different territories when ringed, although the former was not far away; their original territories were occupied by other birds in 1960. Male (q) was at least seven years old and, like the other two males but unlike the female, was breeding again very close to the territory in which he was ringed.

### Age

The little information on the age of breeding shrikes from ringing (tables 3 and 4), assuming that the birds in table 4 were a year old when ringed, shows that eleven were retrapped breeding in their first year (five males, six females), three in their second year (two males, one female), two in their third (male and female), one female in her fourth, one male in his sixth and two males in their seventh.

Table 4. Return in subsequent seasons of Red-backed Shrikes *Lanius collurio* ringed as breeding adults, Hampshire, 1954-66

Ref	Year ringed	Retrapped breeding	Miles away	Sex and age	Remarks
(p)	1955	1960	$\frac{1}{4}$ SE	♂	Paired with (r) in 1960
(q)	1955	1961	$\frac{3}{8}$ S	♂	
(r)	1956	1957	—	♂	Same territory
(s)	1957	1960	6 $\frac{1}{2}$ NNW	1st S ♀	Paired with (p) in 1960

## BREEDING BIOLOGY

*Nest material*

I am indebted to F. R. Clifton who has given me his analysis of the structure of five nests in 1957:

A. Base, entirely heather stalks; body of nest, grasses with small quantity of lichens and heather tops; lining, dead grass interwoven with animal hair and a few feathers. Habitat: open heather moor with much gorse and scattered pines.

B. Base, mainly dead grass with a few pieces of heather; body of nest, dead grass and lichen; lining, enormous quantity of mosses and lichens, the whole looking much like the nest of a Chaffinch *Fringilla coelebs*; no feathers or hair. Habitat: heather and bracken slope with much gorse.

C. Base, mainly dead grass with a little heather; body of nest, dead bracken; lining, coarse hair, a little lichen and much fine matted hair. Habitat: as B.

D. Base, entirely dead grass; body of nest, dead grass, coarse hair and lichens; lining, coarse hair, a little lichen and much fine matted hair. Habitat: as B.

E. Base, dead grass; body of nest, dead grass with a moderate quantity of mosses and lichens; lining, coarse hair and a few feathers. Habitat: scattered thorns along stream-side close to pine-wood.

These may be summarised as follows. Base: much heather 1, very little heather 2, entirely grass 2; body of nest: grass only 1, grass and lichen 1, grass, lichens and hair 3; lining: with feathers (from six to twelve) 3, without feathers 2 (and various combinations of grass, hair, mosses and lichens); whole nest: containing much moss and lichens 2, containing hairs 4, without hairs 1. Feathers are not mentioned in *The Handbook*, but the majority of nests in this area contained a few, and sometimes many. Most of the feathers were from Pheasants *Phasianus colchicus* and poultry, and many of these were from fox-skilled birds as indicated by the characteristic way in which the rachis had been bitten through. One on 12th June was lined with the breast-feathers of a female Mallard *Anas platyrhynchos* killed near-by by a Fox, but on 17th June all had been removed from the nest. One pair built a nest consisting almost entirely of kapok from the lining of an old car seat dumped alongside a main road; needless to say, it was a most conspicuous nest completely visible from the road six feet away. Hair from horses, cows and deer is used regularly, usually as a lining. Fur is used much less, but one nest was entirely and beautifully lined and rimmed with fur of Rabbit *Oryctolagus cuniculus*. There are only a few records of nests lined solely with dead grass, and one was built entirely of this material. A nest in dead gorse stalks had a perfect bower, pulled together by the birds, of living fronds of bracken.

*Nest sites*

There is information for the situations in which 239 nests were built. With only 23 exceptions (10%) all were in thorny growth of some sort. Thorns may be selected because they give some protection from

Table 5. Nest sites of Red-backed Shrikes *Lanius collurio* in Hampshire during 1954-66

'Other thorns' exclude pure stands of those listed, but include the same species in tangles with rose *Rosa*, birch *Betula*, sweet gale *Myrica gale*, honeysuckle *Lonicera*, buckthorn *Frangula*, willow *Salix* and pine *Pinus*. 'Other non-thorns' include birch, sweet gale, honeysuckle, willow, beech *Fagus* and elder *Sambucus*. Heights take in the higher figure: thus '3-4' indicates more than three

feet up to and including four

Nest situation	HEIGHT ABOVE GROUND IN FEET									TOTAL	Mean height	Percentage occurrence
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	?			
Gorse <i>Ulex</i>	2	45	54	7	2	—	—	—	1	111	2.4	46.4%
Holly <i>Ilex</i>	1	14	12	1	3	—	1	—	—	32	2.7	13.4%
Bramble <i>Rubus</i>	1	6	3	3	1	—	—	—	1	15	2.7	6.3%
Hawthorn <i>Crataegus</i>	—	—	2	1	3	2	1	—	—	9	4.6	3.8%
Blackthorn <i>Prunus</i>	—	1	2	—	1	2	—	—	—	6	3.8	2.5%
Other thorns										43		18.0%
TOTAL THORNS										216		90.4%
<i>Rhododendron</i>	—	1	1	—	—	1	—	1	3	7	2.5	2.9%
Other non-thorns										16		6.7%
TOTAL	7	84	96	17	16	8	2	2	7	239	2.96	100%

predators, for there is an unlimited choice of thornless vegetation. In many cases (table 5) nests were built in tangles of vegetation of several species. The largest number of nests in one particular plant species was in gorse, a total of 111 (46%), and a further 16 were in gorse in conjunction with other species, making a total of 127 (53%). The next largest number was 32 (13%) in holly, or 37 (15%) including mixtures with other species. The corresponding figures for the other main plants were 15 (6%) or 33 (14%) in bramble; nine (4%) or 14 (6%) in hawthorn; six (3%) or 15 (6%) in blackthorn; and three (1%) or nine (4%) in rose. Noteworthy unusual sites included ten in dead shrubs or branches, seven in rhododendron, four in willow, three in birch, two in sweet gale *Myrica gale*, two in honeysuckle, one in beech and one in elder.

Generally speaking, nests were not well hidden, and in fact they were sometimes ridiculously exposed (see below). In some cases they were only difficult to find because they were situated in large areas containing similarly suitable nest-sites; at other times nests could be found immediately in the only obviously suitable site: indeed, some nests have been found in this way before the site was known to be an occupied territory. Occasionally nests were placed well inside dense thorn tangles, but generally they were readily accessible to both birds and man. A few were pin-pointed in inaccessible thorn scrub.

#### Height above ground

The height above the ground of 232 nests in table 5 varied from nine inches to 7½ feet. The mean height was 3.0 feet, and the majority

164%) were between two and three feet. Nests were lowest in gorse (110, mean 2.4 feet), slightly higher in holly and bramble (32 and 14 (espectively, mean 2.7 feet), higher in blackthorn (6, mean 3.8 feet) and hawthorn (9, mean 4.6 feet). One nest in a small gorse bush on the side of a narrow ditch was actually a foot below the level of the surrounding ground, but for the purposes of the table the height has been given as from the foot of the bush. Where nests are situated in large bushy areas, particularly in gorse brakes, there is no tendency to place them on the perimeter or near a clearing.

### *Exposed nests*

Many species of birds occasionally select abnormal nest sites, even when normal sites are available, and Red-backed Shrikes are no exception. The most striking case was a bulky nest constructed of dead grass placed three feet high in an isolated dead hawthorn bush: it was clearly visible at a distance of a quarter of a mile. This was destroyed by predators (? *Corvus sp*); the repeat nest was built low in some open blackthorn scrub, but was deserted after I had put a protective screen of bracken round it. It should be added that many nests in exposed sites were given such a protective screen and all the others treated in this way were successful. Other very exposed nests have included several in roadside bushes where the incubating bird had a full view of passing traffic on busy roads. One nest in the top of a large tangle of thorns was completely open to the sky and was predated soon after the eggs hatched.

### *Sites of repeat nests*

Most repeat nests (20 out of 29) were in similar sites to the previous nests (table 6). This suggests that the localised breeding colonies may consist of birds with an inherent preference for particular nesting sites and, therefore, habitat types. This may have importance in conservation management; for example, excessive gorse clearance may result in the loss of a large section of a population which is not prepared to utilise alternative nest sites.

### *Clutch size*

In the absence of daily checks on nests the size of completed clutches is seldom known for certain. Eggs and nestlings disappear in known and unknown ways: taken by predators, tipped out of tilted nests, or inadvertently hooked out by a departing adult. Thus a certain degree of assumption must be attached to all calculations, and this is probably too much to measure any minor variations in clutch size.

In the following analyses, only those clutches are included in which the first egg dates were known or could be calculated (by allowing for an incubation period of 14 days and a laying rate of one egg per



Table 6. Sites of repeat nests of Red-backed Shrikes *Lanius collurio* in relation to earlier ones, Hampshire, 1954-66

Scientific names are given in table 5

FIRST NESTS		SECOND NESTS		THIRD NESTS		FOURTH NESTS	
Site	Total	Site	Total	Site	Total	Site	Total
Gorse	13	Gorse	10	Holly	1		
		Gorse, bramble	1				
		Gorse, birch	1				
		Dead branches	1	Holly	1	Holly	1
Holly	4	Holly	3	Bramble	1		
		Bramble	1	Blackthorn and buckthorn	1		
Gorse, holly and honeysuckle	1	Holly	1				
Hawthorn	2	Gorse	1				
		Blackthorn	1				
Birch	1	Gorse	1				
Bramble	1	Bramble	1				
Bramble and buckthorn	1	Bramble	1				
Sallow	1	Sallow, bramble	1				

day). The mean clutch size (table 7) of 164 clutches for which this figure is calculable was  $4.44 (\pm 0.30)$ , but this figure may be biased towards later (i.e. repeat) clutches. In the table, clutch size varies from one to seven eggs. Clutches of seven are known to be rare in Britain, and this was the only one recorded in the present study. Another clutch with eight eggs was apparently the first recorded in this country and only the second known to the editors of *The Oologists' Record* (W. M. Congreve *in litt.*, 5.12.60). This clutch is thus of some

Table 7. Seasonal variation in clutch size of Red-backed Shrikes *Lanius collurio* in Hampshire during 1954-66The standard deviation of the total mean (4.44) is  $\pm 0.30$ 

Clutch started	NUMBER OF EGGS							TOTAL	Mean
	1	2	3	4	5	6	7		
May 15-21				2	3	2	1	8	5.3
May 22-28		1	1	5	18	8		33	4.9
May 29-June 4			3	17	14	6		40	4.6
June 5-11			2	13	17	3		35	4.6
June 12-18		2		15	4			21	4.0
June 19-25	1		5	8	1			15	3.5
June 26-July 2			6	3	1			10	3.5
July 3-9			1	1				2	(3.5)
TOTAL	1	3	18	64	58	19	1	164	4.44
Percentage	0.6%	2.0%	11.0%	39.0%	35.0%	12.0%	0.6%	100.0%	

interest, particularly as it was almost certainly a repeat nest, and the full details are given. The pair concerned was found on 6th July 1960 in a site which had previously been unoccupied, but they were believed to have been birds which had left a territory a quarter of a mile away after their eggs (an unknown number) had been taken by an egg-collector prior to 11th June. The nest was  $7\frac{1}{2}$  feet high in a dense rose-covered hawthorn bush and could be examined only with difficulty using a mirror on a stick. Seven eggs were counted, but it is quite likely that one was overlooked, and of course it was known neither how long they had been there nor with certainty whether the same pair was involved in both cases. The hen was still incubating on 12th July, but on the next visit on 22nd July there was no sign of either adult. A way was then cleared to the nest, which contained eight exactly similar cold eggs. Subsequent examination indicated that they were all infertile: there was no sign of either decomposition or embryonic development. It may be significant that the other large clutch of seven eggs also occurred in 1960.

### Egg-laying season

Clutches are normally completed at the rate of one egg a day, but rather few nests were found in which the date of the first egg was actually known. The data for first egg dates are given in seven-day periods in table 8. Dates have been estimated in cases of incomplete clutches by deducting a day per egg, and in cases where date of hatching, age of nestlings or date of young leaving nest is known, by subtracting a day for each egg, 14 days for the incubation period and, where appropriate, a nestling period of up to 14 days. Nests with eggs which were lost before it was certain that the clutch had been completed have been excluded. Summers-Smith (1952) has shown that very little error comes into this sort of estimation.

The peak week of laying was 29th May-4th June, but 63% of clutches were begun during the three-week period 22nd May-11th

TABLE 8. Annual differences in egg-laying season in Red-backed Shrikes *Lanius collurio* in Hampshire during 1954-66, shown as weeks in which clutches were started

started	1954	1955	1956	1957	1958	1959	1960	1961	1962	1965	1966	TOTAL	Percent
May-21						1	3	1	1		1	7	4.00%
May-28		2	4	5	2	4	3	5	4		5	34	19.4%
June 4		3	5	6	3	2	6	7	3	1	3	39	22.3%
June 11	2	1	4	8	3	3	3	5	3	1	5	38	21.7%
June 18		2	3	4	1	3	2	2	3		2	22	12.6%
June 25			2	6		3	2	1	2			16	9.1%
July 2			3	6	1			1	3		2	16	9.1%
July 9					2				1			3	1.7%
	2	8	21	35	12	16	19	22	20	2	18	175	100.0%

June. The onset of laying, as measured by the proportion started during 15th–28th May, varied greatly from year to year: 1959, 1960 and 1966 were early years, whilst 1956, 1957 and 1958 were late.

*Seasonal variation in clutch size*

Seasonal variation based on known and calculated first egg dates for 148 completed clutches is also shown in table 7, where the data are divided into seven-day intervals from the date of the earliest egg laid, 15th May. Clutch size decreases almost progressively with the advance of the season, from a mean of 5.3 eggs in the first week to 3.5 in the last three weeks.

Unfortunately there is so much doubt about repeat nests, and the number of attempts, that there are very few reliable data for them. The earliest known date for a first egg in a replacement clutch is 29th May, so that by the third week in table 7 there may be quite a large proportion of repeat nests. It is fairly safe to assume, however, that the first 41 clutches are first attempts, with a mean of 5.0 eggs. For individual pairs in which successive clutches were known in repeat nests, three had clutches of five eggs in first attempts and clutches of four, three and three in second; among second attempts, two with clutches of six had four and three eggs in their third attempts and one with a clutch of five had four eggs. The size of repeat clutches was probably governed more by the date than by the number of repetitions. The following known repeat clutches were recorded: second attempts, 16 clutches, mean 4.4, consisting of clutches of 3 (4), 4 (3), 5 (7), 6 (2); third attempts, five clutches, mean 3.6, consisting of clutches of 3 (2), 4 (3); fourth attempt, clutch of 4 (1).

*Annual variation in clutch size*

Only those nests known or judged to be first clutches are included in

Table 9. Annual variation in size of known and presumed first clutches of Red-backed Shrikes *Lanius collurio* in Hampshire during 1954–66

Year	NUMBER OF EGGS						TOTALS		Mean
	1	2	3	4	5	6	7 Clutches	Eggs	
1955						2	2	12	(6.0)
1956					3	3	6	33	5.5
1957				1	5	2	8	41	5.1
1958					1		1	5	
1959				2	3		5	23	4.6
1960					3	2	1	6	5.7
1961			1	1	5	1	8	38	4.8
1962				1	3	3	7	37	5.3
1966				1	5		6	29	4.8
TOTAL			1	6	28	13	1	49	5.1



PLATE 32. Avocets *Recurvirostra avosetta* grouping, Netherlands, April 1968. Three to 18 meet in a circle with heads inward. Bowing movements, pecking at objects and special calls and postures lead to actual attack (plate 33). Grouping strengthens the pair-bond; copulation often follows (pages 206-209) (photos: W. H. van Schiereen)







PLATE 33. Avocets *Recurvirostra avosetta* attacking during grouping, Netherlands, April 1968. Suddenly one leaps with flapping wings at a bird of another pair. The latter usually moves away, but the aggressor may land on it, striking at it with legs and wings and stabbing with the beak (page 207) (photos: W. H. van Schiereen)





PLATE 34. Avocets *Recurvirostra amusetta* attacking Shelducks *Tadorna tadorna*, Netherlands, May 1969. Normally the warning posture above, with head forward and wings held out from the body, discourages the intruders, but sometimes an aerial attack may follow, as shown below and on plate 35 (page 208) (photos: W. J. H. van Vliet).



PLATE 35. Avocet *Recurvirostra avosetta* making aerial attack on Shelduck *Tadorna tadorna*, Netherlands, May 1969. Wings, legs and bill are all used as weapons (page 208). Avocets harass birds of many other species which enter their territory, but seem especially to resent Shelducks (see also plate 34) (photo: W. H. van Schieeven)





PLATE 36. Precopulatory display of Avocets *Recurvirostra avosetta*, Netherlands, April 1969. Both birds 'false-preen'; then the female lowers her head and neck and stands almost motionless, while the male continues preening on one side of her and then the other, often switching many times (page 209) (photos: W. H. van Aelst)







PLATE 37. Copulation of Avocets *Recurvirostra avosetta*, Netherlands, April 1969. After the preening at each side of the female (plate 36), the male jumps sideways on to her back and with wings stretched and mandibles parted, sinks down upon his tarsi; she moves her head from side to side (page 209) (photo: W. H. van Schiereen)



PLATE 38. Post-copulatory actions of Avocets *Recurvirostra avosetta*, Netherlands, April 1969. After coition the male drops sideways into the water and the pair then run forward with bills crossed and wings held out from their bodies before moving apart with a characteristic crouching gait (page 209) (photos: W. H. van Schieveen)





PLATE 39. Threat displays by Avocet *Recurvirostra avocetta* at nest, Netherlands, May 1952. A human intruder at close quarters (note the hand below) may produce a conflict between attack and escape. With tail cocked and spread wings drooped, the bird moves back and forth, and calls repeatedly (page 208) (photos: Ern Hosking)





Table 10. Clutch size of Red-backed Shrikes *Lanius collurio* in Hampshire during 1954-66, where date of first egg and age of female known

Only two of the clutches in the '2nd year or more' column were laid by females of known age: the 6 on 22nd May (3rd year) and the 4 on 6th June (4th year). Other notes: \*same female in same year; \*\*same female in different years; † second attempt; ‡ third attempt; § fourth attempt

Date of 1st egg	1st year female	2nd year female	2nd year or more	Date of 1st egg	1st year female	2nd year female	2nd year or more
May 15			6	June 7			6
May 16			7	June 7	4		
May 18	5			June 8	5		
May 22			6	June 9	6*		
May 22	5			June 10	4		
May 23	5			June 13	4		
May 23	5			June 14	4		
May 24	6			June 14	4†		
May 30	5			June 20	4		
May 31	5			June 20	4		
June 1	4			June 26	4**		
June 1		6		June 27	3		
June 2		6		June 28	4§		
June 2	5			June 29	4†		
June 3			5†	June 29		3	
June 4	4			June 30			3
June 5			4	July 1	3		
June 6			4**	July 2	4*		

table 9 to show the annual variation in clutch size. Although this leaves a very small sample in each year, the inclusion of clutches started later would involve a variable proportion of repeat nests in each season, and these would naturally mask any annual differences in clutch size. Considering only those samples of five clutches or more, mean annual clutch size of first attempts varied from 4.6 to 6.0. 1959, 1961 and 1966 were lowest and 1956 and 1960 highest.

#### Clutch size and age of female

Table 10 suggests that older birds lay larger clutches than those in their first year, but many of the clutches—including those from first-year adults—are larger than those in the same periods in table 7. The mean clutch size for five first-year hens is 5.2 and 6.3 respectively in the first fortnight in table 10, compared with 5.0 in table 7; in the second fortnight the figures are 4.7 and 5.2 for nine and six hens respectively compared with 4.6, and in the last fortnight they are 3.8 and 3.0 for eight young and two older hens compared with 3.5.

(To be concluded)



# Studies of Avocet behaviour

P. J. S. Olney

*Photographs by W. H. van Schieveen and Eric Hosking*

*Plates 32-39*

The accompanying photographs admirably illustrate various facets of the behaviour of Avocets *Recurvirostra avosetta*. The following notes are based on the work of Makkink (1932, 1936) and Brown (1950) and on my own observations at Havergate, Suffolk, and in France and the Netherlands.

## *Grouping*

Plate 32 shows some of the characteristic aggressive behaviour of Avocets which often, though not always, precedes fighting. These behaviour patterns are basically a series of postures, movements and vocalisations which serve as threats. They tend to repel or intimidate the opponent and sometimes lead to actual combat. They may take place on land or on water.

The first distinguishable movement is the gathering together of more than two Avocets into a group. These groupings are not chance meetings, but are deliberate encounters in which the birds form a rough circle with their heads towards the centre (see especially plate 32c) and their bills lowered almost to or just below the surface. Within the group the Avocets may stand quite still for a short time or they may move forward slightly. A common behavioural component at this stage is for the birds to move their feet and bills up and down in a bowing movement. This movement may be interrupted by pecking at objects or picking them up and throwing them aside with a slight jerk of the head. The bowing is often accompanied by a weak and rapid call—'cwit, cwit, cwit . . . '—which tends to become more excited as a two-note call—'c-c-c-crewer . . . '. Bowing is not only a common element in aggressive behaviour, but is also seen during parental change-over at the nest and as a primary nest-building activity.

The number of Avocets in a group may vary from three to 15, and very occasionally up to 18 are seen together. On one occasion in the Netherlands in May I watched 16 gather into a circle and a series of spectacular bowing movements occurred, followed by some stylised fighting. In this group six definite pairs could be distinguished. Usually it is comparatively easy to distinguish pairs, for they tend to keep close together and often they will copulate before entering

the group or after leaving it. Within the group, even if separated, the two birds quickly come together again and constantly keep side by side.

Normally there are a number of movements preceding any actual contact. The Avocets walk toward one another with their heads stretched out horizontally or slightly upward and with their wings held just away from their bodies. They move forward and around each other rather carefully and slowly. Then suddenly one may spring forward with unfolded and flapping wings (plate 33). Usually the opponents move quickly away. Though the wings play an important part in the attack, the legs and bill may also be used. The attacker may leap on to another bird and may peck or pull at its neck and body. Usually it is merely a stabbing movement, but occasionally one Avocet will hold on to another. Little damage ensues from these attacks and the individual which is being attacked usually moves quickly away, often jumping sideways to avoid the flick of the other's wings. Occasionally one flies away and is chased by a would-be attacker uttering 'kluut, kluut' notes. Normally this is followed by the Avocets dispersing or regrouping.

Often during these encounters individuals will follow each other around with their necks drawn back, their bodies in a horizontal position and their heads held slightly downwards. Occasionally birds from a group will also take to the air. Then the attacker will closely pursue its opponent and turn away only just when it seems as if contact is imminent.

Two strange pieces of behaviour often occur during these aggressive movements. In the first, one or more of the Avocets may suddenly sit down; once seated, they usually begin to peck or pull at surrounding objects and then just as suddenly they get up and move back into the conflict. In the second, one or more of the birds may suddenly assume a sleeping position with the bill tucked below one wing. This often occurs just before or even during an attack and may forestall actual contact. Sometimes, however, it is the attacker which suddenly takes up this attitude that Makkink (1936) called 'pseudo-sleeping'. The position differs from ordinary sleeping in that it is kept up only for a very short time and normally both the bird's legs remain on the ground.

What is the biological significance of these groupings with their aggressive components? Mainly they seem to be a method of strengthening the pair bond. The groupings occur before nest-building and while eggs and young are present. They may take place away from obvious territories and therefore away from eggs and young. The bond appears to be strengthened by the constant coming together of the pair within the group, by their mutual bowing, and by the mutual attack on other Avocets.

*Attacking intruders*

Intruders into nesting or feeding territories are usually subjected to some form of intimidating or attacking display. Other Avocets and other birds, especially Shelducks *Tadorna tadorna*, are frequently harassed by territory-holding parents (plates 34-35). Usually no real contact takes place and the intruder is merely pursued and disturbed enough to make it go away. Normally the attack begins with a typical warning posture, in which the head is held forward and downward and the wings slightly away from the body (plate 34a). Moving forward in this posture or edging toward the intruder may be enough to intimidate the latter to move away. Sometimes, however, an aerial wing-flapping attack follows, in which wings, legs and bill may be used as weapons (plates 34b and 35).

Occasionally an intruder, especially one at close quarters, produces an apparent conflict in the parent Avocets between the motive to remain close to the nest or chicks and the impulse to escape. A compromise behaviour pattern appears to have evolved which is basically a ritualised threat leading often to a distraction display. Smith and Hosking (1955) have well described and illustrated such situations. As an intruder approaches the nest or chicks, one or occasionally both parents will fly around calling excitedly and diving down repeatedly, swerving away just before contact would be made. If this fails to deter the intruder, one of the birds may alight in front of, and run towards, the intruder and begin a threat display. This is the same posture as is often adopted by a sitting Avocet when confronted by an intruder (plate 39). The tail is cocked up, the wings are spread (showing clearly the black and white markings) and the bird repeatedly calls 'crewer, crewer . . .'. The wing tips are drooped almost to touch the ground and may even spasmodically hit the ground with a comparatively loud noise. The bird may move backwards and forwards or mark time with its feet straddling the nest or chicks (plate 39a). This posture may be adopted a number of times, with intervals in which the bird flies up and repeatedly dives at the intruder, or may lead into a distraction display in which it moves away with one wing trailing along the ground.

*Sexual behaviour*

Precopulatory display begins with both of a pair of Avocets preening. Brown (1950) called this 'false-preening' to distinguish it from the less vigorous and less exaggerated normal preening behaviour. Precopulatory preening has the same behavioural components as normal preening, though it is often, but not invariably, interspersed with water pecking and splashing. In preening, the bill is passed through the feathers, beginning near the rump and working into the wings and body, with the head being frequently rolled over the

plumage. The feathers are ruffled up and shaken, often with some stretching of the legs and wings.

Copulation always begins with the female suddenly lowering her head and neck to the water surface (plate 36). In this stance she will remain almost motionless, though occasionally she will make intermittent movements of the head from side to side as in feeding. The male still vigorously preening and water-splashing moves close to the female's side (plate 36a); he then moves behind her to the opposite side and continues with his exaggerated preening movements. The female remains still, though as the male moves she may turn her head and feet slightly in his direction. The male continues to preen on alternative sides of the female for a variable time, and he may change sides many times before coition occurs. The male of a pair on Haver-gate was seen to change sides 25 times over a period of 48 minutes before attempting to mount the female. This was exceptional and during 50 observations of copulation the number of side changes varied from three to 16.

The male then suddenly jumps up sideways on to the back of the female and with his wings outstretched sinks down on to his tarsi; his bill is slightly open, though no sound is heard (plate 37). She usually moves her head from side to side in a wide arc. Immediately after coition the male drops sideways into the water. From the moment he mounts her to the moment he moves back into the water takes only a few seconds. The birds, now separated, hold their wings slightly away from their bodies and move forward with crossed bills (plate 38a). They then move away from each other (plate 38b), either to resume feeding or to begin false-preening again. It is not uncommon for a pair of birds to undertake the complete sexual display again within a few minutes.

The sequence of events described above is not always so clear-cut, and often some of the actions are missing or suppressed. Though it is quick, the behavioural components are easily distinguishable and together they form a beautifully stylised display which is a wonder to behold.

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## Notes

### **Great Crested Grebe found dead with ball of feathers in gizzard**

On examining an adult male Great Crested Grebe *Podiceps cristatus* which had been picked up dead in an emaciated condition at Walton Reservoirs, Surrey, in February 1969, I found an enormous ball of grebe feathers, mostly from the breast and belly, packed tightly into its gizzard, with many more between there and the throat. There were no stones in the gizzard to grind up this ball of feathers which completely prevented any food from entering the digestive tract, and the bird had presumably starved to death.

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We have shown this note to K. E. L. Simmons who comments: 'That Great Crested Grebes eat large quantities of their own feathers is, of course, well-known. The feathers form a ball in the stomach and also break down into a felt-like substance. The habit is discussed, for example by J. Hanzak (1952, *Acta Mus. Nat. Pragae*, 8B: 33-34) and W. Geiger (1957, *Orn. Beob.*, 54: 123-124); see also K. E. L. Simmons (1955, *Avic. Mag.*, 61: 98-99; 1956, *Brit. Birds*, 49: 432-435). The function of feather-eating in grebes is disputed and the whole question under review. In the present case it is unlikely that the ingested feathers were the cause of death, and it seems much more probable that the bird was unable to feed for some unknown reason, eating only feathers until it starved to death. I have myself dissected two adult Great Crested Grebes that had starved to death through having their mandibles accidentally lashed together by nylon fishing-line; both were emaciated and empty of food but had the stomach packed full with a ball of largely decomposed feathers that formed a spongy, green, felt-like mass'. EDS

### **Black-headed Gull and five species of terns skimming over water**

In late September 1967, at Saltsjöbaden, Stockholm, Sweden, J.P.H. watched an adult Black-headed Gull *Larus ridibundus* skimming like a foraging Black Skimmer *Rynchops nigra*, a species with which we are familiar. It was flying in wide sweeping curves among the boats anchored in the harbour, maintaining an altitude of less than a metre above the very calm water. For most of the ten minutes for which it was under observation it was merely flying over the surface, looking down occasionally, but sometimes it dropped slightly and dipped its feet and bill into the water, apparently in an attempt to grasp prey—a common foraging pattern in most of the small (especially the 'hooded') gulls. In addition, however, eleven actual skimming bouts were observed. With shallow wing-beats, the gull flew parallel to and very

close above the surface. It then opened its bill widely and dipped the distal one-quarter to one-third of its lower mandible into the water. No other part of the bird touched the surface, and the mandible was in the water for only a second or so, and on several occasions for only an instant. The three longest trails cut by the bill were each about a metre in length. During one skimming pass, the gull's head moved sharply back under its body, and its mandibles appeared to snap together. This movement resembled the capturing of prey by the Black Skimmer, but it could not be discerned whether the gull actually obtained any prey. None of the many other gulls in the area were behaving in this way.

Apart from this incident, only one of us (P.A.B.) has ever seen skimming behaviour in gulls or terns despite extensive experience of these species. In 1964, he watched a Caspian Tern *Hydroprogne tschegryra* skimming in the Pacific Ocean off Los Angeles, California. Although it was too distant to discern the details, he saw it cut the surface with some or all of its bill for 30 metres. This was repeated three times, but he saw no attempt to seize anything from the water. In 1967 and 1968, P.A.B. saw six or seven instances of skimming behaviour by Royal Terns *Sterna maxima* at their colony on Fisherman's Island, Cape Charles, Virginia. Their behaviour was essentially like that of the Caspian Tern, with no apparent attempt to seize prey, but on several occasions he clearly saw that only the lower mandible (or part of it) was in the water; this was obvious because of the open bill. In summer 1968, on at least three different days, he also watched similar behaviour by Common *S. hirundo*, Roseate *S. dougallii* and Little Terns *S. albigrons*. It seemed to him at the time that the Royal Terns were probably just washing their bills, which were often covered with sand or the remains of fish that they usually decapitate before feeding to their downy chicks. Since there were, however, up to 1,000 pairs of Black Skimmers nesting and foraging in the same area, it also occurred to him that imitation could be the origin of the terns' skimming behaviour. I. R. Tomkins (*Auk*, 80: 549) observed one Caspian and numerous Royal Terns skimming, again without capturing any prey, but this behaviour is certainly not widespread.

After some discussion, we are now of the opinion that most or all of these gulls and terns were probably drinking from the wing; the Common Terns, which were flushed from the eggs they had been incubating in the hot sun, flew immediately to the water and skimmed the surface repeatedly. One would suspect that, if all these species regularly drink salt water, their salt-secreting nasal glands would be correspondingly enlarged; the function of nasal glands has been studied in gulls, but we are not aware of any comparative studies across the family Laridae. These observations indicate that skimming behaviour is not confined to the skimmers themselves, although the latter

have become especially adapted morphologically to forage in this way (R. Zusi, 1962, *Nuttall Orn. Cl. Publ.* 3). They also suggest that such highly-adapted skimming might have evolved from relatively simple movements (such as drinking or bill-cleaning) that are common in most of the Laridae.

We are grateful for the critical comments of Dr Richard Zusi, Dr Monica Impeken and I. J. Ferguson-Lees.

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**Aerial drinking and bathing by some tropical seabirds** Many highly aerial birds, such as swallows (Hirundinidae) and swifts (Apodidae), are known to drink and bathe from flight. While living on Ascension Island in the South Atlantic Ocean during 1962-64, I noted such drinking behaviour in two tropical sea-terns (Laridae), the Sooty Tern *Sterna fuscata* and the Brown Noddy *Anous stolidus*, inshore over the sea near their breeding colonies. The Sooty Tern was the more accomplished of the two, drinking in a manner very similar to the specialised feeding behaviour of the related skimmers *Rynchops spp.* Many of the terns moved fairly low over the water together, all in the same direction into the light trade wind, periodically drinking by dipping the head and scooping up salt water with the bottom mandible lowered, then tipping back the head to swallow. The manner of flight varied, the birds progressing slowly with steady beats, gliding or partially stalling with wings held high. The Brown Noddy was more clumsy, fluttering or gliding lower over the surface and repeatedly dipping the head less sharply but with a noticeable splash as it pecked at the water. Unlike the Sooty Tern, the noddy also got the belly feathers wet while drinking.

I also observed aerial drinking by a third local seabird, the Ascension Frigatebird *Fregata aquila* (Fregatidae) which flapped low and flicked the bill sharply down to snap up water, much as when fishing. The frigatebird and the noddy were also seen to bathe in flight, both flying low over the surface and periodically flopping lightly and briefly into the water, wetting the under-parts. However, while the noddy kept the wings clear of the water, the frigatebird partly opened the wings and wet them too. Both species shook themselves vigorously in the air after each dip but, whereas the noddy would return to land after bathing to preen and oil its feathers, the frigatebird would more often carry out these activities while soaring high in the sky. It is interesting to note that all three species never settle on the water voluntarily, the Sooty Tern and the frigatebird (but not the noddy) soon becoming waterlogged if they do so.

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**Sedge Warblers and other species with mite lesions** With reference to the paper on cutaneous diseases of wild birds by Dr D. K. Blackmore and Dr I. F. Keymer (*Brit. Birds*, 62: 316-331) and the note by Dr C. H. Fry, I. J. Ferguson-Lees and Dr J. S. Ash (*Ibis*, 111: 6611-612, plate 18), we have several records from Libya, Tunisia and France of Sedge Warblers *Acrocephalus schoenobaenus* whose legs were affected by mite lesions. Although none of the birds were submitted to laboratory examination to identify the disease, after reading the descriptions in the above papers we were convinced that the parasitic infestations were probably caused by mites of the genus *Knemidokoptes*.

In 1966, during the C.R.M.M.O. expedition to Libya, C.E. netted 56 birds in the reed-beds of the small lake near Sebha, Fezzan, during 26th-28th April. Four adult Sedge Warblers had conspicuous cutaneous lesions on the legs; three were ringed but the tarsi of the fourth were too mis-shapen for a ring to be fixed. Two of those ringed were strongly affected by the disease: their tarsi and toes had a dry, wart-like appearance and were very hypertrophied by concretions which raised the scales. Furthermore, at the level of the 'ankle'—which was almost blocked up—there was a prominent hard callosity 8 mm long resembling a spur. In both specimens the condition was bilaterally symmetric. In the third the right leg was apparently healthy while the left showed a slight hypertrophy and a small spur. Apart from one of the first two birds cited, which was in fact the worst affected and weighed only 9 gm, the others (compared with healthy specimens) were in rather good physiological condition, weighing respectively 13 and 13.5 gm.

A Tree Pipit *Anthus trivialis* trapped on 28th April (weight 20 gm) showed a dry flaky growth at the base of the median toe on the right foot, but although this lesion was very probably of parasitic origin we cannot assert that it was a knemidokoptic mange.

During another C.R.M.M.O. expedition, to Tunisia in 1968, G.J. netted 178 Sedge Warblers between 17th and 21st May at the Sebkra Kelbia (near Kairouan). Five were parasitised (the descriptions of the lesions resembling very closely those given from Libya): three were released without being ringed (legs too hypertrophied) and two were weighed and ringed (one adult of 12.5 gm and one second-year bird of 10 gm). Again the affected birds were apparently in good physiological condition. Between 19th April and 24th May, 15,685 Sand Martins *Riparia riparia* were caught; one of them (weight 17.5 gm) showed dry flaky growths on the digits. The lesions were obviously of the same origin as those of the Sedge Warblers.

Lastly, in the course of regular ringing operations at Hondainville, Oise, France, L.Y. trapped Sedge Warblers on 8th May 1965 and 30th April, 2nd May and 4th June 1966 with flaky concretions on the legs probably caused by a knemidokoptic mange. The first two were re-



trapped and released on 15th June 1966 and 23rd April 1967 respectively, the survival of these two, both seriously affected, is particularly noteworthy.

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**The identification of Blyth's Reed Warbler in autumn** There is a widespread belief that Blyth's Reed Warbler *Acrocephalus dumetorum* is virtually impossible to identify unless in the hand. During 13th–19th October 1969, on Cape Clear Island, Co. Cork, we observed an *Acrocephalus* warbler which we provisionally identified as that species. Our detailed field descriptions of this bird and the referees' comments will be published in full in the *Cape Clear Bird Observatory Report* for 1969, but we feel that a brief summary of its outstanding features has wider interest.

It showed nine main differences from the Reed/Marsh Warblers (probably mainly Reed *A. scirpaceus* rather than Marsh *A. palustris*) which occur on Cape Clear Island every autumn. These may be summarised as follows, the order having no significance other than convenience for reference:

- (1) Bill much longer, exceedingly long and thin
- (2) Upper-parts colder brown, lacking rufous tinge of *scirpaceus* and also lacking any greenish tinge
- (3) Tail proportionately much longer—huge and rounded
- (4) Wings shorter and more rounded, hence a more whirring flight, reminiscent of a Wren *Troglodytes troglodytes*
- (5) Forehead steeper and crown very peaked (reminiscent of a Dartford Warbler *Sylvia undata*), the forehead making a sharp angle with the line of the bill and therefore giving the bird a less streamlined appearance
- (6) Body tiny, humped and rounded, with tail not in line with the back, also making the bird look less streamlined
- (7) Different call (heard once only)—a very harsh trill, suggesting cross between alarm notes of Wren and Blackbird *Turdus merula*
- (8) Progression lethargic—sluggish, slow and deliberate—by hops from frond to frond, with long waits in between, instead of 'sliding' through the vegetation, though it also once ran like a mouse along a wall
- (9) Complete lack of shyness

The first view of the bird, from 70 yards in failing light on 13th, was of a brown-and-white warbler moving very lethargically through ivy on a wall. Subsequent views, mainly as a silhouette overhead in a tree at ranges down to five feet, were very puzzling, as it seemed very small; when first seen in flight we all mistook it for a Wren. Later views showed it to be an *Acrocephalus*, but specific identification from the available literature could only be tentative. It lacked any marked supercilium and had anything but a short bill, so could not be Paddyfield *A. agricola*, and all other *Acrocephali*, apart from *dumetorum*, were eliminated for various reasons.

Of *dumetorum* the *Field Guide* (1966 edition) states: 'Indistinguishable in the field from Marsh Warbler, but upper-parts usually greyer brown. Doubtfully distinguishable from Reed Warbler by slightly darker and usually less rusty-brown upper-parts. Identified with certainty only in the hand, by wing formula . . .'. P. A. D. Hollom's *The Popular Handbook of Rarer British Birds* (1960) states: 'Although very difficult to separate from Marsh Warbler in the field (except by song) it is a colder and more uniform brown, and has a *noticeably longer beak* than others of this genus', and H. G. Alexander (*Brit. Birds*, 48: 354) also commented that it is 'a quite exceptionally beaky bird'.

The measurements of tail, wing and bill lengths in Kenneth Williamson's *Identification for Ringers*: 1 (third edition, 1968) (see table 1) do not confirm the long bill as a feature of *dumetorum* and suggest that it does not have a long tail, but do show that *dumetorum* has much shorter wings than the other two species (a feature (4) of our bird not mentioned elsewhere). Alexander (*loc. cit.*) also noted that it 'is rarely found in reed-beds or swampy places. Both in its winter haunts and on passage, it prefers to creep about in bushes and low trees'. The habitat is not diagnostic, since Reed/Marsh Warblers regularly occur in bracken, bushes and trees on passage, but the word 'creep' is consistent with point (8). Thus, four of our nine differences from Reed/Marsh Warblers (1, 2, 4 and 8) agreed with at least some of the references to Blyth's Reed Warbler in the literature.

Perplexed by the discrepancies and caution within the literature, but still feeling that we must have been watching *dumetorum*, we sent our field notes and sketches to Dr G. Bergman in Finland. He passed them on to Dr Kalervo Eriksson, who has been studying the breeding biology of *dumetorum* for seven years in an area where it breeds alongside *scirpaceus* and *palustris*, and who has on some ten to twenty occasions caught all three species simultaneously. He agreed completely with our identification, commenting that every one of the nine main differences from Reed/Marsh that we had noted were, in his experience, typical of *dumetorum*, the first five being especially good field marks.

**Table 1. Measurements of Reed *Acrocephalus scirpaceus*, Marsh *A. palustris* and Blyth's Reed Warblers *A. dumetorum* from Williamson (1968), compared with notes on the Cape Clear Island bird**

Means and theoretical ranges of wing, tail and bill lengths are given in mm

	WING LENGTH		TAIL LENGTH		BILL LENGTH	
	Mean	Range	Mean	Range	Mean	Range
Reed Warbler	64.80	58-71	52.32	45-59	16.68	14½-18½
Marsh Warbler	66.94	60-73	52.24	45-59	15.98	13½-18½
Blyth's Reed	61.22	56-66	51.94	45-58	16.65	14½-18½
Cape Clear Island	'very short'		'very long'		'very long'	

To quote Dr Eriksson, with his permission (*in litt.* to J.T.R.S.): 'I agree completely with your suggestion to determine the species as *A. dumetorum*. Especially good identification marks are: the long and thin bill . . . The crown really is peaked. Wings are short and rounded . . . Its huge and rounded tail, totally and very uniformly brown upper-parts with little rufous tinge . . .'. H. G. Alexander (*in litt.* to J.T.R.S.) also commented: ' . . . as I read your description, before I got to your identification, I said to myself: "That can only be *dumetorum*". I think I can claim a good deal of first-hand experience of the *Acrocephali* and I really do not think that your bird could be any of the others—whereas at every point—colour, shape, behaviour—it fits *dumetorum* perfectly'. In view of these comments, the record has been accepted as the first for Ireland by the editor of the *Irish Bird Report*.

From our observations of this one bird, Mr Alexander's comments and Dr Eriksson's vast experience of the species, we consider that Blyth's Reed Warbler is reasonably easy to identify in the field, despite all the statements to the contrary in the literature.

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## Letters

**Monarch butterflies and milkweed plants** In their paper on the influx of Monarch butterflies *Danaus plexippus* in autumn 1968 (*Brit. Birds*, 62: 493-494), J. F. Burton and R. A. French stated that the Monarchs 'cannot breed anywhere in Britain or Europe, however, as the milkweed plants *Asclepias* they feed on do not exist here'. Although not indigenous nor found in the wild, several varieties of milkweed have been grown in Britain as garden plants since the beginning of this century, to my knowledge. They reach a height of two to five feet, according to variety, flowering freely; the seeds and plants of several varieties are currently obtainable here.

I would also like to point out that it is the caterpillars of the Monarch butterfly which feed on the milkweed leaves, upon which the eggs are also laid; the adult butterflies feed on the nectar of a wide variety of both wild and garden plants.

R. S. BAILLIE

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I can understand why Mr Baillie feels it necessary to write his letter. Entomologists are often in the habit of speaking of a butterfly or moth as feeding on a certain food-plant when they really mean the larva, not the adult butterfly; this assumption is all very well for

entomologists, but can understandably be misinterpreted by other naturalists. For this I apologise. We know that only the Monarch larvae feed on milkweeds and that the adult butterflies take nectar from a variety of plants; I have watched them doing it.

Dr French and I were also guilty of a rather sweeping statement when we wrote that milkweeds do not exist here. We meant, of course, that they do not grow in a wild state. Both of us are aware that they are grown as garden plants on a small scale; nevertheless it is highly unlikely that the Monarch could establish itself in Europe as it has in the Azores and Canary Islands.

We are grateful to Mr Baillie for pointing out some careless writing on our part.

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## Reviews

**Atlas of Breeding Birds of the West Midlands.** Edited by J. Lord and D. J. Munns. Published for the West Midland Bird Club by Collins, London, 1970. 276 pages; maps and line-drawings. 30s.

The reasons for the decision by the British Trust for Ornithology to base their *Ornithological Atlas of the British Isles* fairly and squarely on the presence or absence of a breeding bird in each 10 km square rested on the possible, the practicable, the pecuniary and the fact that the West Midland Bird Club had stuck its neck out and was about to complete mapping a large and important area in three years flat. The appearance of their *Atlas of Breeding Birds of the West Midlands* comes half way through the field-work period for the National Atlas (1968-72)—exactly the right time to boost the flagging energies of the ornithological square-bashers.

The keystones of the book are the nicely produced and easily understood maps of the 121 species that bred in Warwickshire, Worcestershire and Staffordshire during 1966-68. Each map is accompanied by brief notes outlining the background history of the species in the area (largely gleaned from previous West Midland Bird Club publications) and decorative line-drawings of variable quality. Thus each species receives a double-page spread in a field-guide sized book that is lavish for the material presented. The text on the Willow Warbler, for instance, amounts to 45 words, leaving over half a page of blank paper; the Moorhen and many others are little better. A larger format with slightly smaller maps would have reduced the number of pages with an economy that could have been passed on to the reader. Coloured front and end plates provide identical but good maps of the three counties. So much for the book—what of its use?

Several items are particularly interesting and worthy of comment.



The feral pigeon either does not breed in the West Midlands or is not a bird—presumably the latter. Never making a song and dance about the 'secret', and widely known, whereabouts of rare breeding birds has always been a merit of the Club. Doubtless some will object to a 10 km square being specified for breeding Marsh Warblers, a species for which the area is noted, and perhaps also to Red-backed Shrike and Cirl Bunting being similarly picked out. The reviewer's opinion is that the species meriting no data on grounds of security can be counted on the fingers of one hand—and none of these to my knowledge breed in the area in question.

It is interesting to see that the Red Grouse has finally given up the ghost in Cannock Chase but that Black Grouse still cling to their foothold on the Staffordshire moors. Black Redstarts continue to breed in Birmingham and have recently been discovered in the Black Country to the north-west, a situation parallel to the move from the City of London to industrial sites in the inner suburbs. The square containing central Birmingham (SP08) boasts 42 breeding species including some perhaps unexpected birds such as Tree Sparrow, Bullfinch, Whitethroat, Nuthatch and Willow Tit.

The editors do well to draw attention to the limitations of their work. The difficulty of under-coverage—three squares were worked for only a single season—and the varying ability of the field-workers has been carefully noted. They draw attention to several squares where, in their opinion, too few species were recorded. A square where only 31 birds were recorded is sandwiched between others boasting 72 and 57 species for no apparent reason. The value of this excellently produced little book lies largely in its relationship to the grander work on the national scale. One can only hope that that will live up to this example.

JOHN GOODERS

**Lundy.** By A. and M. Langham. David & Charles, Newton Abbot, 1970. 192 pages; 32 black-and-white plates; line-diagrams and end-paper maps. 45s.

This book provides a useful introduction to a lovely and exciting island now happily safeguarded for the future in the ownership of the National Trust. Most of us try to find out beforehand about the birds of a new area we are to visit, but how often do we enquire into such things as the social and historical background, or the current land-use policy? On an island this is almost always fascinating and this book covers these points well and in some detail.

My initial reaction was that it had little about birds. This is correct as far as the general text is concerned, but there is a carefully prepared and well-researched appendix giving notes on the status of all species recorded on the island. It occupies something like a tenth of the whole book and is more valuable than a more discursive treatment.

The production is generally good, though I wish the map had been bound in rather than stuck (upside-down in my copy) inside the back cover.

DAVID LEA

## News and comment *Robert Hudson*

**New Cheshire Ornithological Association** More so than in most counties, in Cheshire there has been a proliferation of societies wholly or partially concerned with birds. In consequence there has been fragmentation of effort, difficulty in producing a comprehensive county bird report, and no authoritative body to speak for Cheshire as a whole on ornithological matters. These failings are now to be rectified. During June, representatives of the principal societies got together and decided to form a Cheshire Ornithological Association, this being an association of societies and not of individuals. This arrangement enables long-established bodies with interests that cross county boundaries, such as the Merseyside Naturalists' Association, to retain their individualities. Of the 16 bodies concerned with Cheshire birds, the following 14 have joined the new Association: Altrincham & District N.H.S., Chester & District O.S., Hale Ornithologists, Heald Green Naturalists, Hilbre Island Ringing Group, Liverpool Naturalists' Field Club, Liverpool Ornithologists' Club, Macclesfield & District Field Club, Manchester O.S., Merseyside Naturalists' Association, Mid-Cheshire O.S., South-East Cheshire O.S., West Midland Bird Club (Stoke Branch) and Wilmslow Guild O.S. The first Chairman of the Cheshire Ornithological Association is T. Hedley Bell (author of *The Birds of Cheshire*), and the first Secretary and Bird Report Editor is Dr R. J. Gains. We wish the Association every success.

**Next Bird Report Editors' Conference** The British Trust for Ornithology has arranged for the third national conference of county bird report editors to be held at the Hayes Conference Centre, Swanwick, Derbyshire, over the weekend 29th-31st January 1971. Notifications have already been sent to the county and regional societies. If any bird report editor has not received an invitation, and feels that he should have, would he please contact me at the B.T.O., Beech Grove, Tring, Hertfordshire.

**Birthday Honours** Among the Birthday Honours announced in June are two well-merited ones for naturalists. Dr Frank Fraser Darling received a knighthood for services to conservation. He achieved eminence as an ecologist during the 1930's, but it was his 1969 series of Reith Lectures on conservation (now available in book form from B.B.C. Publications at 21 shillings) that made his name a household word—in informed households, at least. In the same honours list, an O.B.E. went to G. R. Mountfort for services to ornithology. In the opinion of many, Guy Mountfort's most original work has been his studies of the Hawfinch, on which he has written the standard work; but probably he is most widely known for his conservation-orientated expeditions to Spain, Bulgaria, Jordan and Pakistan, all of which stimulated active conservation measures there.

Honours lists are to a large extent influenced by the government of the day, and there can be little doubt that these two honours to conservationists are at least in part due to the concern that Anthony Crosland felt for the subject. But the Labour Government has since fallen; and it must be reported with regret that the new Tory administration has failed so far to convey any impression of genuine interest in environmental and pollution issues, as Stanley Cramp and others have emphasised in a letter to *The Times* of 13th July.

**Irish Sea auk numbers** The disastrous wreck of seabirds, mainly auks, that occurred in the Irish Sea last autumn was described in 'News and comment' for October. Approximately 15,000 bodies were washed ashore, but from experience of previous seabird disasters (notably the wreck of the *Torrey Canyon*) it was thought that the actual kill must have been four or five times greater. Operation Scafarer, the national seabird census organised by the Seabird Group, counted the Irish Sea auk colonies between 1967 and 1969, and has repeated counts at the major ones this year in order to assess the losses from the autumn 1969 wreck. Preliminary results, just released, show that Guillemot colonies in the Irish Sea are down by 47% from last year, and breeding Razorbills are reduced by 27%; further, auk colonies sampled in western Scotland are down 18%. These Guillemot colonies had already declined by 24% between 1967 and 1969, so the further losses, probably about 50,000 breeding adults plus an indeterminable number of pre-breeding birds, are very serious indeed. Since maritime oil pollution is constantly recurring (usually in minor, and therefore 'non-headline', incidents), it may be doubted whether, under present conditions, the auk populations of Ireland and southern Britain can ever recover from such catastrophes as those of 1967 and 1969.

**County Naturalists' Trusts Conference** Under the auspices of the Society for the Promotion of Nature Reserves, the sixth Biennial County Naturalists' Trusts Conference was held at Oxford during 17th-19th April. It was attended by over 200 delegates, including representatives of the Nature Conservancy, World Wildlife Fund, National Trust, National Farmers Union, Royal Society for the Protection of Birds and Countryside Commission. The theme of the conference was participation in conservation. Various contributed papers discussed environmental uses and misuses, pollution, human impact on the countryside, and national responsibilities for the management of the countryside. Dr M. W. Holdgate reviewed the Nature Conservancy's policies on grading national nature reserves and sites of special scientific interest. Since some 67% of British nature reserves are now managed by county naturalists' trusts, there is scope for reserve grading at regional levels. This aspect was extended in an enlightening talk by J. R. Atkinson, County Planning Officer for Durham. Not himself a naturalist, he was able to give an unbiased assessment of the attitudes of planners to conservation. He concluded that the conservation movement was securely established, but that the naturalists' trusts should avoid 'preservation at all costs' attitudes. He cautioned that the trusts should have clear ideas of priorities and long-term objectives so that they could give in gracefully from time to time, concentrating 'die in the last ditch' approaches only on really important sites. In that way alone can the respect of planning authorities be retained; and there is little doubt that planning will become increasingly involved in countryside problems.

**Situations vacant** In 1971 Roy Dennis, warden of Fair Isle Bird Observatory, is to become the Royal Society for the Protection of Birds representative on Speyside. The Fair Isle Bird Observatory Trust are seeking a replacement warden, who must be a competent ornithologist, hold an 'A' ringing permit, be capable of day-to-day maintenance (electricity, plumbing, observatory Land-Rover, etc.) and have a wife able and willing to administer the hostel. Married paragons are invited to contact the Trust at 21 Regent Terrace, Edinburgh 7.

For a number of years, Frank Hamilton has been the R.S.P.B.'s very able representative in Northern Ireland; but he is shortly to return to his native Scotland as George Waterston's chief lieutenant at the Edinburgh office. Thus the R.S.P.B. (The Lodge, Sandy, Bedfordshire) is seeking a new representative for this exacting role in Ulster.

*Opinions expressed in this feature are not necessarily those of the editors of British Birds*

## Recent reports *P. F. Bonham*

These are largely unchecked reports, not authenticated records

This summary covers non-passerines in May (except Alpine Swift, Roller, Hoopoe and Wryneck) and, unless otherwise stated, all dates refer to that month. Although mild, changeable weather with north-westerly winds prevailed during the last week of April, the weather throughout May was dominated by high-pressure systems extending either south-west from Scandinavia or north from southern Europe, bringing mainly easterly winds except for a week of westerlies during the second half of the month. Outstanding features were further waves of records of rare herons (making this the best spring on record for these species), a large passage of marsh terns, and exceptional falls of some Scandinavian migrants and eastern rarities; the last will mostly be covered in the next issue.

### SOUTHERN HERONS

The remarkable influx of **Purple Herons** *Ardea purpurea*, **Little Egrets** *Egretta garzetta*, **Night Herons** *Nycticorax nycticorax* and **Little Bitterns** *Ixobrychus minutus* at the south-west during April (*Brit. Birds*, 63: 143) was followed in May by many more records. Most came from the south and east coasts of England, but others from as far afield as south-west Ireland and Shetland. Some, however, especially those early in the month, were almost certainly April birds appearing in new localities. The **Purple Herons** which had arrived during April at Malltraeth (Anglesey) and the Taw Estuary (Devon) stayed for the first few days of May, while the one at Chew Valley Lake (Somerset) was joined by another on 2nd, both moving on 3rd; on the other hand, the one on St Mary's (Isles of Scilly) stayed throughout the month. Others appeared at Leighton Moss (Lancashire) on 4th, at Chapel St Leonard's (Lincolnshire) on 7th, at Freckleton (Lancashire) on 8th, and at Litlington (Sussex) on 10th. The next was at Cors Tregaron (Cardiganshire) on 17th, and during the following weekend of 23rd/24th three more were found— at Anderby Creek (Lincolnshire), Cley (Norfolk) and Stodmarsh (Kent). A different individual appeared at Cley on 27th and, lastly, one arrived at St Agnes (Isles of Scilly) on 30th and another at Minsmere (Suffolk) on 31st.

Single **Little Egrets** lingered at Ballycotton (Co. Cork) until 2nd and at Heamoor and Hayle (both Cornwall) until 3rd, and two (out of the five in April) remained at Lodmoor (Dorset) at least until 9th. One appeared at Pagham (Sussex) on 1st, and one was seen at Timoleague (Co. Cork) and another found dead at Sandsound (Shetland) on 2nd. The next was seen in Budle Bay (Northumberland) on 3rd; later moved a few miles north to Holy Island where it stayed at least until 10th. Also on 3rd three arrived at Arne (Dorset); one to three were then seen there on seven dates during May, the last on 28th. Two appeared at Donna Nook (Lincolnshire) on 5th, one stayed at Minsmere from 13th to 18th and one was reported from Clonakilty (Co. Cork) on 16th. Two then arrived at Breydon Water (Norfolk) on 18th and the second for May at Pagham on 20th. The next were at North Coates (Lincolnshire) and Leighton Moss on 25th, Littleborough (Nottinghamshire) and Marton (Lincolnshire)—the same bird—on 29th, Pennington Marshes (Hampshire) on 30th and, finally, again at Minsmere on 31st. To emphasise the irregularity of the invasions of this species, the number of Little Egrets recorded each year during 1958-69 has varied from one to over ten; the total is about 80, the majority in May and June except in 1969 when all ten were in autumn.

Three almost simultaneous **Night Herons**—at Yalding (Kent) and Newtown (Isle of Wight) on 2nd and at Ely (Cambridgeshire) on 3rd—closely followed the April records, while the two or three on St Mary's stayed throughout May. The Newtown Night Heron crossed the Solent to the Gills (Hampshire), while what was



probably the Ely one stayed at near-by Burwell for several days; both were last seen on 8th. Another Night Heron at Sidlesham Ferry (Sussex) on 27th was probably not connected with the earlier influx. There was only one confirmed report of the much rarer **Squacco Heron** *Ardeola ralloides*: this appeared on St Agnes on 9th, but later moved to St Mary's and stayed there into June. After the eight **Little Bitterns** in April, reports came in May from Kenfig Pool (Glamorgan), Farlington (Hampshire) and Newtown on 2nd (the last moving with the Night Heron to the Gins, where it was last seen on 7th), Minsmere on 7th and Burton gravel pit (Lincolnshire) on 13th. Finally, one was found dead at Cwm (Flintshire) on 14th.

#### SPOONBILLS, STORKS AND CRANES

As expected in a month of mainly easterly winds, there were many reports of **Spoonbills** *Platalea leucorodia*. Five together at Hickling Broad (Norfolk) on 9th was the largest party, but elsewhere in Norfolk there was one at Cley from 22nd to 24th and two more on 26th, three at Breydon Water on 18th and four there on 31st, and one at Holme on the same day. In Suffolk reports came from Havergate and Minsmere—one to four almost daily at the latter locality—while other occurrences in the east concerned one at Fairburn (Yorkshire) on 14th, two heading north at Anderby Creek on 30th (seen at Spurn, Yorkshire, later on the same day) and one at Washington Ponds (Co. Durham) on 31st. In the north-west, where the species is rare, two were present near Leighton Moss on 10th, one at Siddiek Pond, Workington (Cumberland) on 21st and one at Malltraeth on 25th; the only other reports came from Sussex: one at Pagham and another at Rye in mid-May.

Turning to rarer visitors, a **Black Stork** *Ciconia nigra* was identified over Swaffham (Norfolk) on 4th and seen at Gressenhall and Beetley, ten miles north-east, on the same day; on 7th it was still at Beetley and presumably the same bird was seen at Saxthorpe, a further twelve miles north-east, on 19th or 20th. Another Black Stork was reported from Godshill (Hampshire) on 12th. These were only the fifth and sixth records in the past 25 years, the most recent being one near Brandon (Suffolk), less than 15 miles south of Swaffham, on 26th May 1969, an interesting coincidence, though the possibility of captive origin cannot be excluded especially as one escaped from Okehampton (Devon) in 1969. Two **Cranes** *Grus grus* were reported flying over Cropwell Bishop (Nottinghamshire) on 4th, at least two were present in Shetland from 7th to 17th, and what were probably others were seen at Arne on 2nd and over Nottingham on 18th, suggesting a small influx.

#### SEABIRDS AND WILDFOWL

There were two probable records of **Black-browed Albatross** *Diomedea melanophris* in May: one heading north off St Mary's (Northumberland) on 7th and one at Hermance (Shetland) on 29th. The only accepted records in previous years of any albatross in May have concerned the one that has frequented the Bass Rock (East Lothian) since 1967. **Cory's Shearwaters** *Calonectris diomedea* are also unusual in May, but one was seen off Portland (Dorset) on 9th.

The second drake **Blue-winged Teal** *Anas discors* of the year was reported from Pagham on 12th, later moving inland to Chichester gravel pits where it remained at least until 17th; the third, also a male, was seen at Low Newton (Northumberland) on 30th. The drake **King Eider** *Somateria spectabilis* first reported in Ronas Voe (Shetland) on 23rd March (*Brit. Birds*, 63: 46) stayed until 9th May, perhaps the same individual as the drake which was there from 18th April to 7th May 1969. Again in Shetland, 50 **Long-tailed Ducks** *Clangula hyemalis* were still on Spiggie Loch on 12th, and the last on Fetlar was seen on 23rd; reports from much further south included one off Holy Island on 7th, a female at Chew Valley Lake from 7th to 22nd and a drake at Cley almost throughout the month. Another late winterer was a female **Smew** *Mergus albellus* at Leighton Moss from 2nd to 13th. There were still at least 500 **Pink-footed Geese** *Anser fabalis brachyrhynchus* (accompanied

by a single **Barnacle Goose** *Branta leucopsis* at Loch Leven (Kinross-shire) on 1st, but the last was seen there on 11th. Several skeins of up to 150 Barnacle Geese were seen over Balranald, North Uist (Outer Hebrides) on 2nd, but none subsequently; one stayed at Sweethope Lough (Northumberland) at least until 24th, and one was found on Foula (Shetland) on the same day. Another late record involved nine **Brent Geese** *B. bernicla* at Dungeness (Kent) on 8th. A **Snow Goose** *Anser caerulescens* flying north off Scaton Sluice (Northumberland) on 28th seems likely to have been an escape. Four **Whooper Swans** *Cygnus cygnus* remained in North Nottinghamshire until 2nd, four were seen at Colt Crag (Northumberland) on 3rd and one at Weybourne (Norfolk) on 9th. Finally, a sick adult **Bewick's Swan** *C. bewickii* which had been at Swarkestone gravel pit (Derbyshire) since February was still there at the end of May.

#### CAPTORS

An adult **Golden Eagle** *Aquila chrysaetos* near Watchfield (Berkshire) on 9th should be treated with the usual caution regarding its origin. Three **Red Kites** *Milvus milvus*, at St Bees Head (Cumberland) on 10th, over Whipsnade (Bedfordshire) on 10th and flying south-east at Sandwich Bay (Kent) on 24th, were more intriguing; the latter, especially, may well have been an overshooting individual on return to its Continental breeding-grounds. Single **Honey Buzzards** *Pernis ptilorhynchus* were reported from Somerset and from two Norfolk localities, while **Montagu's Harriers** *Circus pygargus* appeared in at least seven southern and eastern counties. The most widely reported large raptors, however, were **Ospreys** *Pandion haliaetus*, some individuals in a score of localities as far apart as Kent, Anglesey and Shetland; one breeding pair at Loch Garten (Inverness-shire) have raised three young and single birds or pairs were present in May in four or five other localities on the Scottish mainland. **Hobbies** *Falco subbuteo* were seen in a number of places in the south and east, the most northerly at Holy Island on 8th, and **Red-footed Boobies** *F. vespertinus* were reported from Treco (Isles of Scilly), the New Forest (Hampshire), Sandwich Bay and, unusually far north, from Tingwall (Shetland)—an adult female from 10th to 25th.

#### MAIL, CRAKES AND WADERS

The first **Quail** *Coturnix coturnix* of the spring at Skokholm (Pembrokeshire) on 1st and at Portland on 4th heralded a widespread influx during May. Apart from a few more records received from the Midlands and south, there was one on Fair Isle (Shetland) on 7th and another on 29th, one on the Calf of Man on 10th and one on Whalsay (Shetland) on 12th. Small crakes were represented by a **Little Crake** *Porzana parva* and a **Spotted Crake** *P. porzana* both trapped on Fair Isle on 11th, the Spotted Crake reported from Fetlar on 15th and an example of the rarer **Baillon's Crake** *P. pusilla* caught by a cat at Fleckney (Leicestershire) on 19th.

Rare waders included a **Long-billed Dowitcher** *Limnodromus scolopaceus* at Hayle on 11th and, less well authenticated, a probable **Broad-billed Sandpiper** *Limicola melanellus* at Frampton (Gloucestershire) on 12th. A female **Kentish Plover** *Charadrius alexandrinus* at Blackpill, Swansea Bay (Glamorgan) from 17th to 19th was the third record for the county; three also occurred in Suffolk, one at Fairburn and one at Spurn. Migrant **Dotterel** *Eudromias morinellus* included one at Holme, Norfolk, at Snettisham (also Norfolk) and two on Fair Isle on 6th, two at Great Ormes Head (Caernarvonshire) on 12th and six near Royston (Cambridgeshire) on 16th and 17th. The only May report of **Jack Snipe** *Lymnocyrtus minimus* was of a single bird at Chetney (Kent) on 1st.

There was a sizeable movement of **Wood Sandpipers** *Tringa glareola* and **Little Stints** *Calidris minuta* during the first ten days of the month, producing some 45 records of the former (nearly all in the east) and 35 of the latter (the largest party seen at Havergate on 10th). May is also the best month in spring for **Temminck's**

**Stints** *C. temminckii*: these included two at Langton Herring (Dorset), two at Minsmere, two at Cley, up to four at Donna Nook, one at Fairburn, one at Spurn and singles at two places in Nottinghamshire. There were apparently more Temminck's Stints than **Curlew Sandpipers** *C. ferruginea*: the only reports of the latter, all singles, were from Ogston (Derbyshire) on 10th, North Uist on 17th, Slimbridge (Gloucestershire) on 19th and from four or five localities on the east coast.

Sixteen pairs of **Avocets** *Recurvirostra avosetta* bred at Minsmere (eleven in 1969), and 102 breeding pairs and 128 chicks could be accounted for at Havergate at the end of May; other reports of up to five birds came from many coastal localities from Devon to Yorkshire, while one at Malltraeth from 24th to 29th and as many as 13 at Pegwell Bay (Kent) on 11th are worth a mention. A **Grey Phalarope** *Phalaropus fulicarius* was seen on Holy Island on 8th (this species is very rare in spring), and single migrant **Red-necked Phalaropes** *P. lobatus* at Holme on 9th and at Barton Broad (also Norfolk) on 26th. A **Stone Curlew** *Burhinus oedipus* appeared on Bardsey (Caernarvonshire) on 3rd, a very unusual locality for this species.

#### SKUAS, GULLS AND TERNS

Twenty-six **Pomarine Skuas** *Stercorarius pomarinus* flew east off Beachy Head (Sussex) on 4th, and three more were seen there on 13th; another unusual record involved three far up the Severn Estuary at Frampton on 12th, and several other reports of singles or small parties came from the south and east coasts north to Shetland. Much more remarkable were two adult **Long-tailed Skuas** *S. longicaudus* (with complete central tail-feathers) following the steamer from Mull to Oban (Argyll) on 30th: the ten years 1958-67 produced only 15 spring records of this species. Several **Glaucous Gulls** *Larus hyperboreus* and **Iceland Gulls** *L. glaucoideus* were seen between Norfolk and Northumberland and in Shetland, and in addition there was an Iceland Gull inland at Attenborough (Nottinghamshire) on 2nd and another on the south coast at Lodmoor from 3rd to 6th. The second **Mediterranean Gull** *L. melanocephalus* ever recorded in Glamorgan, a first-summer bird, stayed at Blackpill from 10th to the end of the month, and an adult was seen heading north at Sandwich Bay on 13th. Seventy or more **Little Gulls** *L. minutus* were reported, mainly on the east and south coasts and in south Wales. By far the rarest gull, however, was a **Ross's Gull** *Rhodostethia rosea* identified at Holy Island on 31st; if accepted, this will be only the sixth British record.

Passage of **Black Terns** *Chlidonias niger* started about 3rd, and within two or three days had reached huge proportions in some areas: 1,000 passed through Cley on 5th and 6th, and hundreds more were reported elsewhere on the east coast and inland—including, for example, 87 at Grafham Water (Huntingdonshire) on 6th—but the peak was short-lived and very few were seen during the second half of May. In the west there were ten at Kenfig Pool on 10th, ten at Cheddar Reservoir and 13 at Brean (both Somerset) on 15th, and smaller numbers elsewhere. It was also an exceptional month for **White-winged Black Terns** *C. leucopterus*: two at Queen Mary Reservoir (Middlesex) on 3rd, one at Lodmoor on 3rd and 4th and two more in that area between 4th and 8th, four at Holme on 4th and two there on 6th, seven at Brancaster (Norfolk) between 4th and 8th, and singles at Titchwell (also Norfolk) about 7th-9th, Cley on 11th and 12th, Anderby Creek from 15th to 17th and Durlough (Somerset) from 29th to 31st. Even more exceptional, no fewer than five **Whiskered Terns** *C. hybrida* were reported: at Sutton Courtenay (Berkshire) from 2nd to 6th, at Grafham Water on 6th, at Blithfield Reservoir (Staffordshire) on 10th, in the Solent on 12th and at Chichester gravel pits from 14th to 21st. With the April record (*Brit. Birds*, 63: 144), six is the highest annual total and compares with only 17 since 1958. With the exception of the Somerset White-winged Black Tern, which may of course have arrived in Britain some time earlier, the coincidence of dates suggests that all three species of terns were involved in the same overshooting movement in the anticyclonic weather of the first week of May.



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# *British Birds*

## Observations on a decreasing population of Red-backed Shrikes

J. S. Ash

(Concluded from page 205)

### *Egg colour*

The coloration of Red-backed Shrikes' eggs is known to vary widely. The commonest type was like a larger and more buff edition of the egg of a Great Tit *Parus major*. About 10% of the clutches were erythristic. The coloration of 50 clutches is summarised as follows:

Ground colour of pale pink, pink, reddish-pink, greenish, yellowish-green, dark green, greyish-green, olive, pale buff, buff, buffish, pinkish-buff, greyish-buff, greyish-white, dirty white, cream, creamy white, white, buffish-white, or stone. Spotted, blobbed, speckled or zoned (usually just above the widest part) with reddish, pale reddish, pale reddish-brown, greyish, grey, buffish-grey, olive, pale olive-brown, greyish-olive, brownish, or pale brown.

In 1957 and 1959 the eggs of one hen were of a most unusual type, buffish ground colour with a few very large greyish marks. In 1958 another nest was found about a mile away with exactly similar eggs, and the ringed female involved proved to be a daughter (in her first summer) of the above hen.

### *Incubation period and hatching time*

Because nests were visited infrequently there is rather little information on the period of incubation. Incubation begins before the completion of the clutch. Hens were seen on six nests with incomplete clutches (1/6, 3/5, 3/4, 3/3+, 1/5) but not on three others (3/5, 1/4, 1/3), where the first figure is the number of eggs being incubated, or not being incubated, and the second the final clutch size. Further evidence is



provided by the spread of the hatching period. Three examples illustrate this point:

- (1) Clutch of 6 on 2nd June; 3 eggs and 3 nestlings at 19.15 on 14th; 1 egg and 5 nestlings at 20.15 on 15th; 6 nestlings at 20.15 on 16th.
- (2) Clutch of 6 on 2nd June; 6 eggs at 18.15 on 14th; 4 eggs and 2 nestlings at 20.00 on 15th; 1 egg and 5 nestlings at 19.45 on 16th.
- (3) Clutch of 4 on 2nd June; 4 eggs at 18.00 on 6th; 3 eggs and 1 nestling at 17.45 on 8th; 1 egg and 3 nestlings at 17.00 on 9th; 4 nestlings at 17.00 on 10th.

Hatching was spread over more than 24 hours in all these cases, so that incubation must have started when the penultimate, or even the pre-penultimate, egg of the clutch was laid.

Some figures are available for the incubation period of 12 clutches starting from the completion of the clutch (table 11). As in most cases it is not known precisely when a clutch was completed nor when a clutch began or finished hatching, most of the figures can only be given as a maximum or minimum. In three cases the first egg hatched at least on the 13th day, in one case on the 14th and in two before the 15th. In one case the last egg hatched at least on the 13th day, in two others at least on the 14th, in two before the 15th, in one at least on the 15th, in one on the 15th, in one before the 16th and in two before the 17th. In two cases there is evidence that a complete clutch of five eggs hatched before the 15th day after the completion of the clutch. Thus the first eggs hatched about 14 days after the completion of the clutch and the last eggs in 14-15 days, suggesting that incubation usually starts with the penultimate egg in the clutch.

#### *Incubation and brooding*

In total, nests have been visited many hundreds of times whilst they contained eggs or young. On only one occasion has a cock shrike been seen on a nest. On 13th June 1960, a male was clearly seen on a nest containing five erythristic eggs on their fourth day of incubation. This bird had been ringed when breeding five years earlier, and the

**Table 11. Incubation periods of Red-backed Shrikes *Lanius collurio* in Hampshire during 1954-66**

Information from twelve individual clutches is expressed as the number of days elapsing between the completion of the clutch and the hatching of the first and last eggs. Most of the figures can be given only as maxima or minima

Clutch size	First egg	Last egg	Clutch size	First egg	Last egg
6	13+	15+	5	—	<17
6	13+	14+	5	—	13+
5	—	<15	4	13+	15
5	14	<17	4	—	<16
5	—	<15	3	—	14+
5	<15	—	3	<15	—

female when breeding three years earlier. All eggs hatched and the young fledged.

### *Hatching success*

The hatching success, or hatchability, of 189 completed clutches incubated for the full period, and for which the hatching date is known within a day or two, is given in table 12. These figures exclude the clutch of eight infertile eggs. Shrikes frequently eject unhatched eggs or dead young from the nest, and it is possible that in some cases young have died at an earlier stage and been ejected between my visits to the nest. These will have been counted as unhatched eggs, but they are unlikely to number more than a very few. Earlier clutches hatch better (96%) than later ones (91%) and also, in June, clutches of four and five eggs hatch better than larger and smaller ones. The mean hatchability for all clutches is 94.6%. Two unhatched eggs were found twice in a clutch of 6, once in a clutch of 5, twice in a clutch of 4 and once in a clutch of 3; three unhatched eggs occurred twice in a clutch of 4.

Two infertile clutches of three and eight eggs were found in 1960 and 1961; otherwise the contents of only three unhatched eggs were examined critically, one in 1960 and two in 1961, and these contained nearly dead embryos. Isolated infertile eggs in an otherwise fertile clutch must be very rare. Including some data additional to those in table 12, twelve unhatched eggs were found in 84 nests in 1955-59, compared with 38, including the two infertile clutches of eight and three, in 79 nests in 1960-69. Six unhatched eggs from four nests in 1962 were analysed for pesticide content, and small amounts of dieldrin, DDE, DDT and TDE were found in them (Ash 1964). It is not known if these residues were likely to have had an adverse effect on hatchability or embryonic development. One egg only two-thirds normal size hatched successfully and the nestling fledged.

### *Fledging period*

As stated, little information was obtained on the development of nest contents. There were only three broods in which the time of undisturbed departure from the nest was known, and only one in which the time of hatching was also known for certain. Of this latter brood, which were watched from a hide leaving the nest at 16.00, 14 days and 23 hours had elapsed from the time of hatching of the first egg and between 13 and 14 days from the hatching of the last. In the other two cases, the young left in something under 16 days. Fourteen days is probably the usual period spent in the nest. It has been shown that the incubation period from completion of clutch is about 14 days, and allowing for a laying rate of an egg a day and a maximum of seven days for nest-building, the breeding cycle from the beginning of

**Table 12. Hatching success of Red-backed Shrikes *Lanius collurio* in Hampshire during 1954-66, depending on month and clutch size**

In each group of three columns, a = the number of clutches, b = the number of eggs laid, and c = the number of eggs hatched

Hatching season	SEVEN EGGS			SIX EGGS			FIVE EGGS			FOUR EGGS			THREE EGGS			TWO AND ONE			TOTALS		
	a	b	c	a	b	c	a	b	c	a	b	c	a	b	c	a	b	c	a	b	c
June 3rd-30th	1	7	7	17	102	94	45	225	214	39	156	154	4	12	11	2	4	4	108	506	484
Percent hatch					92.2%			95.1%			98.7%			91.7%					95.7%		
July 1st-29th							6	30	28	22	88	78	12	36	34	1	1	1	41	155	141
Percent hatch								93.3%			88.6%			94.4%					91.0%		
TOTAL PERCENT HATCH					92.2%			94.9%			95.1%			93.8%					94.6%		

**Table 14. Fledging success of Red-backed Shrikes *Lanius collurio* in Hampshire during 1954-66**

Nest attempt	A. DATA FROM NESTS FOUND					B. DATA FROM A APPLIED TO TOTALS IN TABLE 13				
	Eggs hatched	Young fledged	Per cent	No. of nests		Eggs hatched	Young fledged	No. of nests	Mean number fledged per nest	
1st	260	247	95.0%	53		642.6	610.5	131	4.7	
2nd	364	325	89.3%	95		329.5	294.2	86	3.4	
3rd	21	20	95.2%	6		28.0	26.7	8	3.3	
4th	4	4		1		4	4	1	4	
TOTALS AND MEANS	649	596	91.8%	155		1004.1	934.4	226	4.1	

nest-building to young fledging, for a clutch of six, is about 41 days. If for such a clutch nest-building had begun on 20th May (an early date), the young would fledge about 1st July. With both parents fully occupied feeding the fledged young for about 14 days, it is quite clear that no time is left for a second brood before departure south from about mid-August. It will be shown later that the success of the first nests attempted is small (about 50%), so that relatively few broods are in fact fledged by the first week of July.

As with many species of birds of prey which start incubation before clutch completion, the resulting uneven age of a brood of nestling shrikes is an adaptation to food supply. In time of food shortage, the older and stronger nestlings obtain the most food at the loss of the weaker ones. In many cases small young in various stages of development have later been seen to be all of similar size; this is presumably a reflection of an adequate food supply.

### Nesting success

Table 13 lists the nesting success and the number of attempted nests before success was achieved for a total of 255 nests built by 226 pairs (out of a total of 445 pairs plotted in eleven years). The attempt category has been assumed or estimated in many cases, based on the criteria used in earlier tables. Probably some third attempts are included in the second attempt category. There were 55 successful nests for which there is no information into which attempt category they should be placed. The degree of success as measured by the

**Table 13. Nesting success of Red-backed Shrikes *Lanius collurio* and the number of attempted nests before success was achieved in Hampshire during 1954-62 and 1965-66**

'Percent success' is the number of pairs successful at the first attempt expressed as a percentage of total of first to fourth attempts (i.e. excluding those in the ? column and those where success was unknown). In many cases the attempt category has had to be estimated on criteria used in earlier tables

Pairs located	Nests found	Successful at attempts						Success unknown	Failed nests found				Percent success
		1st	2nd	3rd	4th	?			1st	2nd	3rd	?	
15	2	4	2	—	—	1	8	—	—	—	—	—	67%
28	12	9	4	—	—	6	9	1	—	—	—	—	69%
51	31	15	9	1	—	10	16	4	2	—	—	—	60%
68	62	16	16	5	1	3	27	13	10	2	—	—	42%
57	19	6	10	—	—	13	28	1	2	—	—	1	38%
30	17	12	10	—	—	2	6	1	—	—	—	—	55%
61	31	38	8	—	—	3	12	4	2	—	—	1	83%
57	30	14	10	—	—	14	19	3	4	—	—	2	58%
33	25	8	7	2	—	1	15	4	2	—	—	2	47%
14	4	1	—	—	—	—	13	—	—	—	—	—	
31	22	8	10	—	—	2	11	4	—	—	—	—	44%
445	255	131	86	8	1	55	164	35	22	2	6		58%



proportion of successful first attempts averaged 58%, but varied greatly from year to year. 1960 was the most successful with 83% success, and 1957 and 1958 were lowest with 42% and 38% respectively. Over the whole period, 38% were known to be successful at the second attempt and 4% at the third or fourth. Although there is no information on totally unsuccessful pairs, for the success of one third of the pairs located is not known, they are believed to be few. The species has proven ability to re-lay rapidly in the face of successive nest losses, up to at least four times in the present study; pairs were known to re-nest even after losing half-grown young.

### *Fledging success*

Fledging success is given in table 14 (page 228) for 155 nests with known attempt categories. These figures are biased towards success because they include many broods which were not revisited after ringing. After normal ringing age at about seven days nest losses are probably very small, so these figures in fact are unlikely to be gross over-estimates. Eight nests revisited seven or eight days after ringing all contained the original number of chicks. Fledging success was 95% in 53 first attempts, but was reduced to 89% in 95 second attempts.

The data from the left hand side (A) of this table can be applied to the totals of nests given in table 13. This provides figures for the mean number of young fledged per nest in each attempt category: 4.7 young in first attempts, 3.4 in second attempts and 3.3 in third attempts. This is a mean of 4.1 young per successful pair. Annual indices for fledging success can be established by applying these means to the annual figures in table 13 (see table 15). The range about the mean of 4.1 young fledged varied little in most years, being 3.9-4.3 in 1955-59, 1961, 1962 and 1966; it was, however, higher in 1960 at 4.5.

### *Nest losses*

The little evidence on the causes of the 65 complete nest failures is

**Table 15. Mean numbers of young fledged by successful pairs of Red-backed Shrikes *Lanius collurio* in Hampshire during 1955-62 and 1966**

These have been estimated by applying the mean number of young fledged per pair in each nest attempt category in table 14 to the corresponding successful attempt column in table 13 (omitting the ? column there). Only years for which there was a total of ten or more records have been included

Year	Mean fledged	Total records	Year	Mean fledged	Total records	Year	Mean fledged	Total records
1955	4.3	13	1958	3.9	16	1961	4.2	24
1956	4.2	25	1959	4.1	22	1962	4.0	17
1957	4.0	38	1960	4.5	46	1966	4.0	18

summarised below. In years in which 20 or more nests were found (table 13), after deleting those not revisited, losses amounted to 44% in 1957, 31% in 1961 and 32% in 1962, but the proportions were 5%, 18%, 23% and 24% in four other years.

*Predators:* 25 losses (38%) were attributed to predators, divided between corvids (19 = 29%) and ground predators (6 = 9%). Magpies *Pica pica*, Jays *Garrulus glandarius* and Carrion Crows *Corvus corone* were very common in the area. Carrion Crows fed much out in the open, but were never seen entering the bushes in which shrikes bred. Magpies and Jays, however, were commonly seen in shrike nesting cover, and it is possibly these two species which were largely responsible for most of the lost nests ascribed to corvids. Such nests were characterised by having the lining of the bottom of the nest pulled out and eggs and chicks removed. Nests disturbed by ground predators were pulled down from below, and in three nests mice (*Apodemus*?) were suspected for their droppings were found in the nest. Grass Snakes *Natrix natrix* may also have been involved for they were seen in gorse bushes several times, and one was found removing a nestling Whitethroat *Sylvia communis* from its nest.

*Egg-collectors:* 13 losses (20%) were suspected to be due to egg-collectors. In only a few cases was there definite evidence; in other suspected cases eggs had been removed and the nest left undisturbed. Twice the nest and contents had been removed completely. On various egg-collectors' own admissions this shrike population was still much persecuted. One man is known to have taken eight clutches in one season, and many people were involved in collecting over the period of the study, when the main quest seemed to be erythrisc eggs. A particularly large number of clutches were reported to have been taken in 1957, a year when nest losses were higher than in any other season during the study. A demand for British clutches from Continental egg-collectors followed Vaurie's (1955) acceptance of the British breeding population as a distinct race *L. c. juxtus* (W. M. Congreve *in litt.*, 20.1.61). Such action was particularly unfortunate against a bird in its last British stronghold.

*Tilted nests:* another cause of partial or whole loss was through tilting of the nests due to insecure support. This was sometimes caused by strong winds dislodging nests placed in slender bushes, or by the weight of the young or the incubating female loosening a nest from a firm support to which it was not attached securely. A total of 15 tilted nests was recorded in this study, five of them in 1960. There was good evidence for part of the nest contents being lost through tilting in three cases, and it probably occurred in several others, but only two nests (3%) suffered total loss from this cause. I saved some tilted nests from further loss by giving them additional support. Nine of the nests were in gorse, one each in bramble and holly.

*Unknown and other causes:* 18 more nests (28 %) were lost through unidentified causes, including some in which nest contents disappeared without any trace of disturbance to either the nest or the surrounding vegetation and two others in which the chicks were found dead. The remaining seven lost nests (11 %) comprised two with infertile clutches, two lost through wind and rain killing the young and three through desertions—one of the latter because domestic animals trampled down and ate the surrounding cover, and another due to my over-zealous addition of protective cover to a very exposed nest.

#### POPULATION DYNAMICS

The mean annual loss between the end of one breeding year and the start of the next season (assuming no loss of breeding adults) is estimated in table 16 for six years, 1957–62, in areas A and B. The figure varied from 61.2% to 72.0%, with a mean of 67.4%. With the mean annual loss running at 67%, a mean productivity of about 4.1 fledged young/pair must be maintained by any self-perpetuating population at this level. With productivity less than this the population will decline, and if maintained at 4.0 young/pair it will be eliminated in due course. For maintenance with recruitment at 4.0 young/pair annual mortality would need to decrease by less than one per cent. Thus a self-perpetuating population is maintained by a delicate balance of annual mortality against juvenile recruitment; changes in one, however, will compensate opposite changes in the other. The results from the present study suggest that this population is being affected by an increase in juvenile mortality or in the loss—either through mortality or movement to other areas—of adults returning to breed (see 1961 and 1962 in table 16), rather than through a reduction in

**Table 16. Population fluctuations of Red-backed Shrikes *Lanius collurio* in study areas A and B in Hampshire during 1957–62**

'Preceding population' is the post-breeding population in the preceding year: this has been estimated by applying the mean fledging rate for the year concerned in table 15 to the number of breeding pairs in table 1 and adding the number of breeding adults

Year	Preceding population	Breeding population	Total loss	Percent loss
1957	161	60	101	62.7 <sup>0</sup> / <sub>0</sub>
1958	180	56	124	68.9 <sup>0</sup> / <sub>0</sub>
1959	165	54	111	67.3 <sup>0</sup> / <sub>0</sub>
1960	165	64	101	61.2 <sup>0</sup> / <sub>0</sub>
1961	208	60	148	71.2 <sup>0</sup> / <sub>0</sub>
1962	186	52	134	72.0 <sup>0</sup> / <sub>0</sub>
TOTAL	1065	346	719	
Mean	177.5	57.7	119.8	67.4 <sup>0</sup> / <sub>0</sub>

the production of young. Evidence for this is strengthened by the position in 1960-62, when in the first two years productivity was above a self-perpetuating level, but the breeding population decreased from 32, through 30, to 25 pairs.

The composition of the breeding population from 18 retraps of birds ringed as nestlings (one as a first-year female) consisted of twelve (67%) in their first nesting season, two each in their second and third years (11% each), and one each in their fourth and seventh (6% each). Using a mean fledging success of 4.2 juveniles/pair (table 44), 67.7% of the post-breeding population consisted of juveniles. In the following breeding season 67% of the population will consist of surviving juveniles in their first breeding season, and 64% of adults and juveniles combined will not have reappeared. Taking the post-breeding population as 100, this will consist of 67.8 juveniles, 21.6 first-year birds and 3.5 each second- and third-year and older birds. Thus 68.1% of the juveniles did not reappear in their first breeding season and a further 83.6% did not come back in their second season, but in subsequent seasons there was no measurable loss. It is difficult to understand why there should be an increased loss in the second year, and it must be assumed that this is an artifact resulting from the small sample. Also, in the absence of more precise population data, the above discussion must be largely speculative.

#### DISCUSSION

Annual fluctuations in the numbers of breeding Red-backed Shrikes in the Continent have been ascribed to differences in the weather during migration (Svårdson and Durango 1950). Taking the Hampshire area as a whole there have been no changes of this type comparable with those mentioned by these authors; however, at a purely local level (i.e. within a few square miles) marked annual differences have occurred. For example, in area A between 1956 and 1962 there were 6, 2, 3, 5, 11 and 13 pairs. The widespread decline of this species in north-west Europe is well-documented, and although the first stages of this progression in Britain are traced back to the turn of the century, there can be no doubt that the decrease has accelerated in recent years (Peakall 1962). This same author showed that over the 22 years 1950-59 the population over much of Britain was reduced by approximately a further 50%. As the Hampshire population remained relatively stable until 1960 or 1961, it is possible that it was more resistant to the adverse factors—if indeed they were acting there—affecting shrikes elsewhere in Britain. A decrease in the Hampshire birds (table 1) was not appreciated until 1962, when area B showed a further reduction below the previous year's decrease (unfortunately the larger area C was inadequately covered in 1962).

The co-operative census of 1966, directly comparable with the



earlier one in 1961, confirmed that the decline had set in, and that the population was now at only about half the level of five years earlier. A feature of the local decline was an increase in one part (area A) during 1961-66\*. Otherwise, bearing in mind that the 50% decreases recorded by Peakall for 1950-59 were at various population levels and in various regions, the present study provides tentative evidence that the rate of decrease was accelerating during 1961-66.

Various suggested reasons for the species' decline were examined by Peakall. Amongst these he considered loss of habitat, predation and parasites as being unimportant at a national level, a finding which is confirmed in the present study, and to which human disturbance can be added. There does not appear to have been any important change in the amount of shrike habitat in the Hampshire area, and there were always large and suitable areas which were never tenanted, and others which were periodically abandoned or recolonised. A major reduction of gorse on open heathland, however, where the majority of pairs nest, might be expected to have a detrimental effect. Birds of prey have remained relatively stable in the area (Tubbs 1968) and in any case are not believed to be an important factor; deaths of breeding adults would seem to be low, a point also mentioned by Durango (1956).

Nest losses to corvids are readily overcome by the shrikes' ability to lay repeat clutches, although of course production of young from later nests is reduced. Jays, Magpies, Jackdaws *Corvus monedula* and Carrion Crows are common in the area and there is no evidence that either they or their predation of nests have increased. The study birds showed a remarkable tolerance to human disturbance, and although this factor has greatly increased in the area there has not been a single case of its being the cause of unsuccessful breeding. In fact, when an occupied caravan was parked for some time with one corner only nine inches from a nest, the shrikes concerned continued to incubate and rear their young.

It has been suggested by various authors that the climatic change leading to warmer and wetter summers during this century, and its consequent effect on the numbers of certain insects, has led to a change in distribution of various species of birds. Durango (1950, 1956) placed Red-backed Shrikes in this category. Although there are several sets of data for long-term changes in bird numbers, the point cannot be settled in the absence of similar data for the key insect species (Peakall 1962). However, changes in the abundance of particular prey species may not be important where the bird species is utilising a fairly wide prey spectrum, and some birds at least are known to be able to transfer attention to other arthropod species in the event of the reduction of once favoured prey species (e.g. Potts 1970 for the

\*Even in area A, however, there has since been a reduction from twelve pairs in 1966 to five pairs in 1969 (see page 237).

Table 17. Meteorological data from Porton and Boscombe Down, Wiltshire, in May-July 1953-68

The sun column gives the mean hours of sunshine per day; the temperature is expressed as the mean of the means of daily maxima and daily minima; and the rain is shown as the total precipitation in mm, followed in brackets by the number of days with a measurable precipitation. The fourth column under each month grades the weather according to the following nine categories: e = excellent, vg = very good, g = good, fg = fairly good, a = average, fp = fairly poor, p = poor, b = bad, vb = very bad

Year	MAY			Grade	JUNE			Grade	JULY			Grade
	Sun	°F	Rain		Sun	°F	Rain		Sun	°F	Rain	
1953	6.85	54.2	49 (11)	g	5.58	57.1	44 (17)	fp	6.55	59.4	83 (20)	fp
1954	5.49	51.3	57 (16)	p	5.09	55.6	85 (19)	b	4.64	57.1	65 (14)	b
1955	6.86	49.4	100 (22)	b	5.76	56.9	73 (11)	fp	8.78	63.1	28 (4)	c
1956	8.25	52.7	9 (9)	c	5.44	55.5	41 (10)	b	5.58	60.5	57 (15)	a
1957	7.25	50.2	46 (9)	fg	10.06	59.5	42 (11)	vg	5.43	61.9	94 (19)	fp
1958	6.05	51.9	61 (17)	fp	5.06	56.4	78 (15)	p	6.42	60.3	50 (17)	a
1959	7.23	53.9	23 (9)	vg	7.44	58.4	19 (13)	fg	8.76	62.8	30 (8)	c
1960	5.95	54.3	33 (8)	g	8.84	60.3	72 (14)	vg	5.35	58.7	102 (16)	p
1961	7.49	50.6	23 (8)	g	8.45	57.6	23 (8)	g	6.45	60.0	36 (10)	a
1962	6.18	49.4	49 (20)	p	9.07	56.2	5 (5)	g	4.57	58.8	42 (14)	p
1963	6.21	49.8	35 (13)	fp	5.41	57.6	126 (16)	b	6.04	58.6	33 (11)	a
1964	6.00	55.0	117 (14)	fp	5.35	56.8	66 (12)	fp	6.78	61.2	21 (7)	fg
1965	5.88	52.0	45 (12)	fp	5.50	56.8	45 (16)	fp	3.92	57.0	82 (16)	vb
1966	7.63	51.0	64 (13)	g	6.71	58.8	58 (16)	fg	5.67	58.4	55 (14)	a
1967	5.57	51.2	111 (21)	vb	7.09	56.8	28 (7)	a	7.02	62.4	34 (9)	g
1968	5.51	49.4	57 (13)	b	6.02	58.2	63 (13)	a	5.38	58.4	35 (11)	a
Mean	6.53	51.6	55 (13.4)		6.68	57.4	54 (12.7)		6.08	59.9	53 (12.8)	

Partridge *Perdix perdix*). It might therefore become necessary to demonstrate reduced abundance in a wide range of potential prey species. Another explanation, as an alternative to—and not necessarily involving—a reduction in insects, is the possibility that prey species become less available in poor weather (because they fly less, become less active on the ground, or even remain hidden to view more often). An attempt to demonstrate this point shows clearly that there is a great reduction in the number of flying insects seen in cool wet conditions than in warm dry ones, and it is also very obvious (although there are no supporting data) that shrikes are also much less active in the former circumstances. Quite a small increase in the duration of adverse weather may exert considerable influence on the breeding success of shrikes, but whether this is due to an actual decrease in the number of prey species, or to a decrease in their availability, is not known and the subject requires more detailed investigation.

The multiplicity of variables in the weather which may directly or indirectly affect bird numbers or their breeding success are difficult to analyse. We can only be concerned with generalisations here, but it is useful to speculate on their various possible influences. In an attempt to categorise the summers in terms of sunshine, temperature and precipitation, meteorological data from near-by Wiltshire are given in table 17, together with a system of scoring each month's weather as a whole.

When various aspects of the breeding season, such as population level, date of beginning of laying, size of first clutches, success at first attempts, fledging success and mean annual loss are examined in relation to the weather conditions in both the current and preceding years, no consistent correlation appears. 1960, however, was an outstanding year with a high population, the earliest first egg dates, the highest clutch size, the highest success at the first attempt at nesting, the highest fledging success and the lowest mean annual loss. In this year the May, June and July weather was categorised as good, very good and poor, respectively, so that breeding season conditions were favourable; 1959 was even better—very good in May,

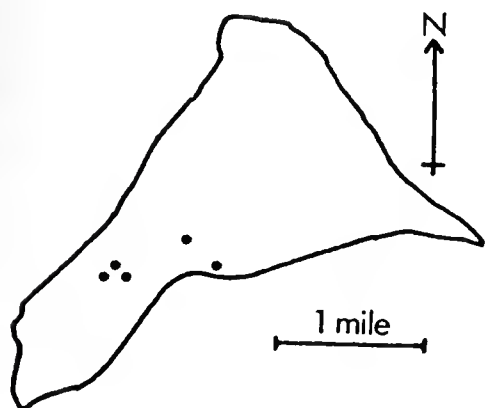


Fig. 4. Distribution of breeding pairs of Red-backed Shrikes *Lanius collurio* in part of Hampshire (area A) in 1969 (cf. fig. 3 on page 189)

fairly good in June and excellent in July- and it is possible that this influenced the situation in the forthcoming season. The data are inadequate for further discussion.

#### POSTSCRIPT

In 1969 only area A was covered and only five breeding pairs were established (see fig. 4). Other observers were able to record only two pairs in areas B and C. One pair laid a clutch of eight eggs—the second to occur in this study (pages 202-203)—but only four hatched.

The situation was unusual in that females arrived well in advance of males; at the end of May six females, but only one cock, were present. Subsequently two of these hens associated with one cock, but although two nests were found in this territory it was not established whether they were both occupied at the same time.

#### ACKNOWLEDGEMENTS

Over the years many people have sent me their observations on Red-backed Shrikes, and some of these and others helped in the co-operative surveys in 1961 and 1966. I am very grateful to all of these, particularly to C. R. Tubbs who was a joint organiser of the two surveys: M. C. Adams, Miss E. Batchelor, D. F. Billett, T. H. Blank, J. K. Bowers, G. Boyle, J. V. Boys, P. Le Brocq, Miss M. M. Bruce, M. Bryant, Dr Bruce Campbell, D. J. Chilcott, F. R. Clifton, Mrs B. Clifton, G. H. Clay, E. Cohen, R. H. Dennis, T. Dixon, R. Elmes, J. J. W. Everett, Dr D. E. Fry, Dr D. J. Godfrey, C. Henty, A. Horner, R. J. Jackson, E. L. Jones, J. E. Major, B. A. E. Marr, P. Mays, J. H. Morgan, Rev G. W. H. Moule, Squadron Leader N. W. Orr, K. H. Palmer, Dr D. B. Peakall, E. F. Pearce, L. J. Raynsford, G. H. Rees, A. L. Scott, K. D. Smith, J. H. Taverner, W. H. Truckle, C. R. Tubbs, Dr A. B. Watson, Winchester College N.H.S., E. J. Wiseman and J. Wright. I also thank Dr R. P. Bray and C. Lachlan for their comments on this paper.

#### SUMMARY

Between 1954 and 1966 a population of Red-backed Shrikes *Lanius collurio* was studied on three adjoining areas in Hampshire totalling 162 square miles; the whole region was well covered in four years and data are available for eight others. The two Smallest areas totalling 23 square miles were more intensively studied.

Most pairs were on *Calluna/Erica* heath with gorse *Ulex*, holly *Ilex* and other thorns, and by adjoining stream-sides and shrub layer. There were 68 pairs in the peak year. Population changes are confused by differential fluctuations in the three areas. A 50% decline in total occurred between 1961 and 1966, with the greatest loss in the south-east, but there was an increase in the north-west. Breeding pairs were loosely colonial, with intervening areas of suitable habitat unoccupied. 'Popular' areas were sometimes deserted and new colonies formed. At high densities there were 4.2 pairs per square mile of suitable habitat. Little song was heard.

Only a few small larders were found. Common prey included bumble-bees *Bombus* spp, dung-beetles *Geotrupes* sp, various Lepidoptera (particularly Fox Moths *Macrolepida rufi*), dragonflies (all identified being *Cordulegaster boltonii*), lizards *Lacerta* sp, Common Shrews *Sorex araneus* and various small birds taken on the ground or in the air. In fine weather there were five times more flying insect prey in high population areas than in low; in bad weather there was only about one-tenth as many in both areas.

Stuffed birds (Cuckoos *Cuculus canorus*, Jays *Garrulus glandarius* and also owls)



were violently mobbed and attacked. There was little reaction to man even when the birds had young. Bathing, ectoparasites, plumage, deformities, nesting material and egg colour are discussed.

In all, 743 birds—adults, juveniles and nestlings—were ringed; only one was recovered overseas, but individuals were retrapped up to at least seven years old. Birds ringed as nestlings were controlled up to  $9\frac{1}{2}$  miles away in subsequent years; one female ringed as an adult was found breeding  $6\frac{1}{2}$  miles away in another season, but three males remained close to where they had bred previously.

One egg a day was laid, the earliest on 15th May. The peak week of laying was 29th May-4th June and 63% of clutches started in the three weeks from 22nd May. 90% of nests were in thorny growth, including 53% in gorse, 15% in holly and 14% in bramble *Rubus* (or combinations of these species with others). They were 9 inches to  $7\frac{1}{2}$  feet above ground level, mean 3.0 feet, with 64% at two to three feet; they were lowest in gorse (2.4 feet) and highest in hawthorn *Crataegus* (4.6 feet); pairs with lost nests tended to repeat in similar sites. Mean clutch size was  $4.44 \pm 0.30$ , ranging from one to eight eggs, and it decreased from 5.3 in the first week to 3.5 in the last three. First clutches contained, on average, 5.0 eggs; repeat clutches were smaller. Mean first clutch size varied annually from 4.6 to 6.0, being lowest in 1959, 1961 and 1966 and highest in 1956 and 1960. Older hens probably laid larger clutches.

Incubation started before clutch completion, and was by the hen alone for 14 days. Earlier successful clutches hatched better (96%) than later ones (91%); clutches of four and five hatched better than larger and smaller ones; mean hatching success was 94.6%. There were two infertile clutches; other unhatched eggs were mainly early dead embryos: there were more unhatched eggs in 1960-66, when some examined contained residues of four pesticides, than in 1955-59. Lost clutches were readily replaced (up to four times in this study); success at the first attempt varied annually from 38% to 83% (mean 58%), being lowest in 1957, 1958 and 1966 and highest in 1955 and 1960.

The nestling period was about 14 days. Fledging success was better in first attempts (95%) than in second (89%). Mean young fledged from successful nests was 4.7 in first, 3.4 in second and 3.3 in third attempts. Mean young fledged per successful pair was 4.1, ranging from 3.9-4.0 in 1957, 1958, 1962 and 1966 to 4.5 in 1960 and 5.0 in 1955. Nest losses were 31%-44% in 1957, 1961 and 1962 and only 5%-24% in four other years; 38% of losses were attributed to predators (29% corvids, 9% ground predators); 20% to egg-collectors; 28% to unidentified causes. Tilted nests caused some losses but many others were saved.

Mean annual loss from the end of one breeding season to the beginning of the next was estimated as 67% (range 61-72%); thus recruitment at 4.1 young/pair was not too low to maintain a stable population. Present evidence suggests that adult loss was the cause of the decline, because over the period of decrease productivity was at or above a self-perpetuating level. 67% of the post-breeding population consisted of juveniles, and 67% of the breeding population consisted of birds in their first year, so that juvenile loss was 68%; loss in the following year was higher at 84%.

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## Studies of less familiar birds

### 1159 Crag Martin

#### Stanley Cramp

Photographs by K. J. Carlson, R. G. Carlson and F. G. Startup

Plates 40-43

The Crag Martin *Hirundo rupestris* is a small brown and white swallow, which at first glance and at a distance might be mistaken for a Sand Martin *Riparia riparia*. It is slightly larger and stockier, however, with darker upper-parts, dingy white below, darker on the belly and under tail-coverts, with a dark wedge on the under-wings from the wing-pits, and without a breast band (plates 40-42). The tail is almost square, with white spots towards the tips on both sides, clearly visible at close range when the tail is spread but hard to distinguish at other times (plate 40). In the rocky mountain gorges which they favour for nesting Crag Martins are unmistakable — agile and adroit fliers, looking dark as they swing along the rock face, usually singly or in pairs, abruptly diving or climbing, or turning swiftly in easy controlled flight.

Crag Martins breed over a large area stretching from the Iberian peninsula, central and southern France, Switzerland, Bavaria and Austria, across the Mediterranean region (Italy, the Adriatic, south-east Europe, the Mediterranean islands, and Algeria, Morocco, Tunisia and Cyrenaica in North Africa) to Turkey and the Near East, the

Crimea and Caucasus, Iran, Afghanistan, north-west India, the Aral-Caspian region and Turkestan north to the western Altai, then east in central Asia through Sinkiang, Tibet and Mongolia to south-west Manchuria and central China. Their northern limit approaches the July isotherm of 68° to 71°F (Vaurie 1959, Voous 1960). Along the south of much of this extensive range the Crag Martin is replaced in desert areas by the Pale Crag Martin *H. obsoleta*, a smaller and much paler bird of rather similar habits. Some authors (e.g. Meinertzhagen 1954, Voous 1960) prefer to regard these closely-related species as conspecific, together with the two African rock martins *H. rufigula* and *H. fuligula*.

Crag Martins are rather thinly spread over this wide area, for they have specialised nesting requirements and, unlike House Martins *Delichon urbica* with which they are not uncommonly found in mountainous areas, or Sand Martins, they breed not in large colonies but in small dispersed groups or even as single pairs. They nest mainly in rocky gorges in mountainous areas (plate 43c), with steep cliffs and running water not too far away. They commonly range from 500 metres or so to 2,000 or 3,000 metres in the Tien Shan and almost up to 4,000 metres in the Pamirs, where there are frequent night frosts even in summer. Occasionally they will nest much lower than this if suitable crags and water are near, but more surprising are reports of breeding in low, hot and arid areas in Malyi and Bolshoi Balkhan in central Asia (Dementiev *et al.* 1954).

The climatic conditions in the breeding area determine the extent and timing of migration as well as the breeding season. Crag Martins from the more northerly or higher nesting areas are migratory, but elsewhere they are mainly resident or wander a little in winter. Information on passage is rather scanty, as they commonly move through mountainous areas in small groups of three to seven, though flocks of 25 and even up to 300 have been recorded in late spring. Wintering Crag Martins have been noted in northern Yunnan, in India as far south as the Bilgiris and Palni Hills, in south-west Arabia, the Red Sea, Sudan south to Khartoum, the highlands of Abyssinia and occasionally the Canary Islands (Vaurie 1959). Autumn passage occurs from August to early October and most spring movements have been recorded in April and early May.

Some of the most extensive breeding studies have been made in Switzerland by Strahm (1954, 1963). He found that when they first arrive in spring there is much noisy aerial chasing, often involving three birds, which ceases as soon as pairs have formed. They are then much quieter and mainly involved in defence of their nesting territories. These cover a section of the cliff face near the nest (nests in Swiss colonies varied from ten to eighty metres apart), which they patrol regularly, attacking any intruding martins, sometimes

seizing them by the nape of the neck. They gather much of their food in the territory, but there are also neutral feeding areas away from the nesting areas used by all Crag Martins in the group. They will also drive off House Martins from their territories, though the latter species does not prevent intrusion by the slightly larger Crag Martin near its own colonies. Crag Martins also chased other species nesting on the cliffs, such as Black Redstarts *Phoenicurus ochruros* and Wallcreepers *Tichodroma muraria*, while a passing Kestrel *Falco tinnunculus* roused all the martins in the vicinity, with a louder version of their normal rather weak call. Strahm noted two other forms of display, besides the aerial chasing. The first involved paired birds flying up to each other and touching bills; food may have passed, but he could not be sure of this. In the second, seen once, a Crag Martin flew backwards and forwards in front of the nest on which its mate was perched, holding a plume of grass *Stipa pennata*. Three times it dropped the plume, let it fall ten or twenty metres and then dived to retrieve it, before finally presenting it to its mate.

The nests are usually built on sheer rock faces, often sheltered by an overhang (plate 43b). Strahm (1953) found that the majority faced south, others between east and south or between south and west, and that they ranged from 3.5 to 49 metres above ground level. Nests in tunnels have been reported in both Turkey and Switzerland. Meinertzhagen (1954) noted that they had been recorded nesting with Pale Crag Martins in caves in Palestine, but in one such cave he visited only the latter were actually breeding. Nests on buildings are known, but these appear to be relatively infrequent, and then usually on ruins or unoccupied buildings. The nest featured on plate 43a was therefore rather exceptional. It was built inside the entrance lobby, just above the main steps, in the Town Hall of Castelo de Vide in eastern Portugal. This was the only pair of Crag Martins among the many House Martins building on houses in the centre of the town, though other Crag Martins nested on the cliffs in the hills outside the town. In May 1970 Richard Porter and I found a small group of Crag Martins building their nests just under the eaves of a modern tourist hotel in a wooded valley to the north of Ankara, Turkey. These two examples suggest that the Crag Martin may be about to follow the House Martin in becoming a symbiote of man, which could lead to a considerable increase in numbers.

The nest is shaped like a quarter of a sphere, open at the top (plates 41 and 42) and often built on a slight ledge or protuberance or in a hollow part of the rock (plate 43b). Dementiev (1954) stated that the nest is a flimsy structure, as the mud is not strengthened by grass stems or hair, but Dr J. K. Carlson found that the Portuguese birds (though the construction was mainly by one of the pair, distinguished by an abraded feather on the head) brought mud mixed with grass and



stalks. Both Strahm (1954) and Dementiev (1954) reported very considerable variations in the sizes of different nests. The lining may be almost non-existent, or include grass, stems, leaves and spider cocoons with down and feathers. The Portuguese birds, before adding feathers, used moss from the roofs of the surrounding buildings. Most nest construction takes place in the early morning, and usually takes about a week.

The first eggs are laid in mid-May and early June, but may be much later than this in high or more northerly areas. The eggs are white with a rosy tinge, spotted and streaked, especially towards the blunt end, with grey, purple or cinnamon. Clutch sizes vary: four or five in Europe, three or four in the Caucasus, four or five in the Tien Shan and from two to five in the Himalayas. Dementiev (quoting Prenn 1937) stated that incubation lasted 14 days, and that apparently only the female was involved, but Strahm (1956) recorded frequent change-overs. The fledging period was said by Prenn to be 25-26 days. The young are fed about every five minutes on average. At first the parents swallow the faecal sacs, but later they carry them away, and from an examination of these Strahm concluded that the food of the young consisted mainly of Coleoptera and Diptera taken in flight by the adults. At this time the Crag Martins hunt close to their nesting cliff, but when the young have fledged the family parties often move to meadows or fields, where the young continue to be fed by the parents for 14 to 21 days after fledging.

Where climatic conditions delay the start of the nesting season there is clearly insufficient time for a second brood. Second broods have been proved in Switzerland, however, and probably occur elsewhere. Strahm (1956) found that second broods (the first being started in June and the second in early August) were regular at Charmey, where the nesting cliffs faced SSW, but that none occurred at Rummeling on eastward facing rocks, although there was no great difference in altitude. Adult birds are said to moult once a year between June and November, while the moult of juveniles begins and ends rather later. Moult is most frequent in July and August, but as might be expected with such differing breeding seasons there is considerable variation in different areas (see Dementiev *et al.* 1954 for details).

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## Recoveries in Great Britain and Ireland of birds ringed abroad

Robert Hudson

During 1968 no fewer than 790 foreign-ringed recoveries, involving 81 species, were notified. These are the highest totals for both individuals and species since 1963, when, it may be remembered, arctic weather conditions caused exceptionally high bird mortality. The 1968 increase is due largely to the fact that the various European bird-ringing schemes are co-operating more closely with each other, and are now sending details of foreign recoveries to their counterparts in the countries of recovery. In the past there has been a tendency for such exchange of data to be limited to unusual or otherwise 'exciting' recoveries.

Two species are appearing in these lists for the first time in 1968. A Mediterranean Gull *Larus melanocephalus* found breeding in Hampshire had been ringed as a chick in eastern Germany two years previously; while a Firecrest *Regulus ignicapillus* trapped and released in Suffolk on 26th November had been ringed in Belgium 16 days earlier. These additions bring the number of species which have provided foreign-ringed recoveries in Great Britain and Ireland to 160. This Firecrest recovery was by no means the 'quickest' received during the year. A Pied Flycatcher *Ficedula hypoleuca* ringed in the Netherlands on 17th August was killed by a cat in Essex five days later; while it took only four days for a Redstart *Phoenicurus phoenicurus* ringed in Norway on 10th September to come to grief on an oil rig off the Norfolk coast.

Among other interesting recoveries, attention is drawn to the Goldcrest *Regulus regulus* from eastern Germany, Little Gull *Larus minutus* and two Ringed Plovers *Charadrius hiaticula* from Finland, Water Rail *Rallus aquaticus* from Czechoslovakia, and Mute Swan *Cygnus olor* from central France. An American Wigeon *Anas americana* shot in Co. Kerry in October, found to have been ringed in Canada six weeks previously, evidently had crossed the Atlantic in the westerly

winds prevailing at that time. But perhaps more significant in the long run will be the two Eiders *Somateria mollissima* ringed on Vlieland (Dutch Frisian Islands) and recovered in Northumberland and Yorkshire; direct evidence for North Sea crossings by Dutch Eiders is still surprisingly limited.

Table 1. Foreign-ringed birds reported in Great Britain and Ireland in 1968 and the totals for these species during 1906-68

	1968	Total		1968	Total
Manx Shearwater	1	3	Great Black-backed Gull	3	130
Storm Petrel	2	4	Lesser Black-backed Gull	1	30
Gannet	2	18	Herring Gull	2	95
Heron	15	244	Common Gull	22	834
Mallard	22	380	Mediterranean Gull	1	1
Teal	54	1,587	Little Gull	1	5
Garganey	1	13	Black-headed Gull	145	2,253
Wigeon	19	221	Kittiwake	1	38
American Wigeon	1	2	Common Tern	1	30
Pintail	1	72	Arctic Tern	4	20
Shoveler	5	77	Guillemot	8	22
Tufted Duck	11	99	Collared Dove	4	18
Pochard	2	42	Long-eared Owl	1	14
Goldeneye	4	16	Short-eared Owl	1	5
Eider	2	3	Swallow	20	77
Goosander	1	4	Sand Martin	47	191
Shelduck	6	95	Fieldfare	2	82
Grey Lag Goose	5	30	Song Thrush	9	61
White-fronted Goose	5	235	Redwing	5	87
Pink-footed Goose	13	2,037	Blackbird	14	340
Barnacle Goose	5	233	Redstart	1	7
Mute Swan	1	4	Robin	4	22
Whooper Swan	9	23	Reed Warbler	1	6
Sparrowhawk	1	15	Sedge Warbler	4	8
Kestrel	1	16	Whitethroat	1	6
Water Rail	1	9	Blackcap	2	8
Moorhen	3	55	Willow Warbler	2	7
Oystercatcher	7	62	Chiffchaff	1	4
Lapwing	6	284	Firecrest	1	1
Ringed Plover	3	22	Goldcrest	1	3
Golden Plover	1	92	Pied Flycatcher	1	5
Turnstone	1	22	Pied/White Wagtail	1	11
Snipe	16	143	Starling	60	2,021
Jack Snipe	2	6	Greenfinch	4	28
Woodcock	9	76	Goldfinch	3	21
Curlew	16	191	Redpoll	2	7
Whimbrel	1	4	Linnet	2	32
Redshank	3	28	Chaffinch	40	282
Knot	9	68	Brambling	6	38
Dunlin	93	600	Tree Sparrow	1	5
Great Skua	1	4			



PLATE 40. Crag Martin *Hirundo rupestris* dropping from nest, Portugal, June 1969. Recalling a large Sand Martin without a breast band, this species also has four bold white spots on each side of the almost square tail (partly visible on left here) and a dark wedge up from the wing-pit (pages 239-243) (photo: K. J. Carlson).





PLATE 41. Crag Martin *Hirundo rupestris* building, Portugal, June 1969. The nest is typical of many swallow species—a quarter sphere open at the top and largely built of mud; the lining may be very sparse or include grass, moss, feathers and similar materials (pages 241-242) (photos. K. J. Carlson and, below, R. G. Carlson)





VII 42. Two more studies at this nest which was being built in the entrance of  
own hall (see plate 43a). These four photos show the brown upper-parts, brown-  
otted throat, whitish upper breast and otherwise smoky under-parts darkening  
belly and under tail-coverts (*photos. R. G. Carlson and, below, F. G. Startup*)







PLATE 43. Top, the hide at the nest of the Crag Martin *Hirundo rupestris* on plates 40-42, in the entrance of the town hall at Castelo de Vide, Portugal, June 1969, the actual site being at the apex of the arch by the flash apparatus; such sites on occupied buildings seem rare, but may become commoner (page 241) (*photo: F. G. Startup*). Centre, a nest in a natural site on a sheer rock face under an overhang, Turkey, May 1970; this nest, viewed from the ground, was about 40 feet up the cliff shown below on the right, by the main road (*photos: R. I. Porter*).



Following species did not provide foreign-ringed recoveries during 1968, though they have in previous years: Red-throated Diver (2), Great Crested Grebe (1), Slavonian Grebe (1), Grebe (1), Fulmar (1), Cormorant (7), Shag (3), Bittern (7), White Stork (2), Spoonbill (3), Mallard (18), Scaup (64), Mandarin (2), Velvet Scoter (2), Common Scoter (2), Red-breasted Merganser (7), Bean Goose (2), Brent Goose (11), Bewick's Swan (2), Rough-legged Buzzard (1), Common Harrier (2), Hen Harrier (2), Montagu's Harrier (1), Osprey (8), Hobby (1), Peregrine (8), Kestrel (7), Coot (13), Grey Plover (1), Bar-tailed Godwit (13), Common Sandpiper (1), Spotted Sandpiper (1), Greenshank (1), Purple Sandpiper (1), Little Stint (3), Temminck's Stint (1), Common Sandpiper (2), Sanderling (9), Ruff (3), Avocet (2), Arctic Skua (2), Iceland Gull (2), Common Tern (1), Caspian Tern (1), Sandwich Tern (19), Razorbill (5), Black Guillemot (1), Puffin, Rock Dove (2), Woodpigeon (5), Turtle Dove (3), Cuckoo (1), Swift (1), Skylark (6), House Sparrow (3), Hooded Crow (10), Rook (47), Jackdaw (12), Great Tit (4), Blue Tit (3), Bearded Tit (1), Wheatear (4), Whinchat (2), Black Redstart (1), Lesser Whitethroat (1), Garden Warbler, Spotted Flycatcher (7), Dunnock (3), Meadow Pipit (4), Rock Pipit (5), Grey Wagtail (2), Common Wagtail ssp (4), Waxwing (5), Hawfinch (1), Siskin (17), Twite (1), Bullfinch (1), Reed Pheasant (3) and Snow Bunting (1).

## Unpublished list of recoveries reported during 1968

Symbols and terms are the same as those used in the 'Report on bird-ringing 1968' (see page 406 in *Brit. Birds*, 62: 393-442), with the exception that the term 'juv.' cannot always be relied upon to signify a young bird able to fly freely; due to lack of unanimity in a few ringing schemes, this term may sometimes mean a chick (= pullus).

## Abbreviations used for ringing schemes

Vogeltrekstation Arnhem	Mld.	Madrid Museum
Statens Viltundersøkelser, Ås, Norway	O.	Oslo Museum
Natural Sciences Institute, Brussels	P.	C.R.M.M.O., Paris
Copenhagen Museum	Pg.	Narodni Museum, Prague
Vogelwarte Helgoland	Rk.	Reykjavik Museum
Vogelwarte Hiddensee	Star.	Stavanger Museum
Helsinki Museum	St.	Stockholm Museum
Société Jersiaise	St. Orn.	Stockholm 'Ornis' (Sveriges Ornithologiska Förening)
Moscow Ringing Bureau	U.S.-1	United States Fish & Wildlife Service

## Shearwater *Puffinus puffinus*

f.g.	13.5.67	Ushant: 48°28'N. 5°05'W. (Finistère) France
v	20.6.68	Skokholm: 51°42'N. 5°16'W. (Pembroke)

## Petrel *Hydrobates pelagicus*

f.g.	27.7.68	Mykinesholmur: 62°06'N. 7°40'W., Faeroe Islands
v	31.7.68	Fair Isle: 59°32'N. 1°37'W. (Shetland)
ad.	6.7.63	Burhou: 49°44'N. 2°15'W., Channel Islands
v	4.10.68	Skokholm: 51°42'N. 5°16'W. (Pembroke)

## Pet *Sula bassana*

pull.	24.7.66	Les Etacs: 49°42'N. 2°15'W. (Alderney) Channel Islands
×	29.8.68	Leysdown: 51°23'N. 0°54'E., Sheppey (Kent)
pull.	24.7.66	Les Etacs, Channel Islands
× A	25.7.68	Golspie: 57°57'N. 3°59'W. (Sutherland)



**Mallard** *Anas platyrhynchos*

M.	ad.♂	25.7.67	near Kandalaksha: 67°02'N. 32°35'E. (Murmansk) <b>U.S.S.R.</b>
D525595	+	autumn 68	Shapinsay: 59°03'N. 2°50'W. (Orkney)
Md.	juv.	15.6.64	Marismas del Guadalquivir: 37°10'N. 6°17'W. (Sevilla) <b>Spain</b>
D3734	+	29.1.68	Womersley: 53°40'N. 1°11'W., Doncaster (York)

These are the most northerly and southerly origins for 1968 Mallard recoveries.

**Teal** *Anas crecca*

Rk.	pull.	13.8.67	Raudasandshreppur: 65°29'N. 24°01'W. (Vestur-Bardastrandar) <b>Iceland</b>
67037	+	9.11.67	Lough Beg: 54°48'N. 6°29'W. (Antrim)

The paucity of Icelandic-ringed recoveries of Teal is no doubt due to the small numbers ringed in that country.

**Garganey** *Anas querquedula*

A.	juv.♀	12.8.68	Capelle: 51°41'N. 4°58'E. (Noord Brabant) <b>Netherlands</b>
3094508	+	2.9.68	Logan: 54°44'N. 4°58'W. (Wigtown)

**Wigeon** *Anas penelope*

Rk.	pull.	6.8.68	Skipalón: 65°47'N. 18°12'W. (Eyjafjardar) <b>Iceland</b>
39022	+	10.10.68	Tain: 57°48'N. 4°04'W. (Ross)
Rk.	ad.♀	25.6.67	Hrísey: 66°01'N. 18°24'W. (Eyjafjardar) <b>Iceland</b>
310802	/2/	0.12.67	Stronsay: 59°06'N. 2°35'W. (Orkney)
Hki.	pull.	18.7.68	near Hailuoto: 65°02'N. 24°34'E. (Oulu) <b>Finland</b>
H82505	+	14.12.68	Strangford Lough: 54°30'N. 5°35'W. (Down)
Hki.	pull.	26.7.68	near Oulunsalo: 64°59'N. 25°14'E. (Oulu) <b>Finland</b>
C165612	+♀	21.11.68	Tacumshin: 52°12'N. 6°28'W. (Wexford)

These are selected for publication since they are known to have been ringed in their natal areas.

**American Wigeon** *Anas americana*

USA	juv.♂	29.8.68	Jemseg: 45°51'N. 66°08'W., Grand Lake (New Brunswick) <b>Canada</b>
69643358	+	12.10.68	Banna: 52°21'N. 9°49'W. (Kerry)

American Wigeon were present on near-by Akeragh Lough during 6th-12th October, with a maximum of 13 on 10th; their dispersal after 12th was thought to be due to disturbance caused by shooting. This is the second ringed American Wigeon known to have crossed the Atlantic; the other, also ringed on Grand Lake, was shot in Shetland in 1966 (*Brit. Birds*, 61: 66).

**Shoveler** *Anas clypeata*

St.	pull.	10.6.62	Kapelludden: 56°49'N. 16°50'E. (Öland) <b>Sweden</b>
9500178	+♂	12.11.62	Hesketh Bank: 53°44'N. 2°53'W. (Lancashire)
M.	pull.♂	15.6.68	Lake Engure: 57°17'N. 23°07'E., <b>Latvian S.S.R.</b>
H82606	+	12.10.68	Freston: 52°01'N. 1°11'E., Ipswich (Suffolk)

**Tufted Duck** *Aythya fuligula*

A.	pull.	30.7.67	near Zandvoort: 52°21'N. 4°32'E. (Noord Holland) <b>Netherlands</b>
5027175	×(net)	20.2.68	Lady's Island Lake: 52°12'N. 6°23'W. (Wexford)
A.	pull.♀	28.7.68	near Zandvoort, <b>Netherlands</b>
1032413	v	15.11.68	Deeping St James: 52°40'N. 0°17'W. (Lincoln)

Only those ringed as pulli have been selected for publication.

**ed** *Aythya ferina*

ad.♀	2.5.65	Enäjärvi: 61°32'N. 21°38'E. (Turku & Pori) <b>Finland</b>
+	6.12.66	near Leeds: 53°50'N. 1°35'W. (York)

only the third Finnish-ringed Pochard recovered in Britain and Ireland.

**ueye** *Bucephala clangula*

ad.	8.6.62	near Lit: 63°19'N. 14°59'E. (Jämtland) <b>Sweden</b>
+	9.11.68	Lough Neagh: c.54°35'N. 6°20'W. (Down/Antrim)
ad.♀	30.5.64	near Leksand: 60°41'N. 15°03'E. (Kopparberg) <b>Sweden</b>
+	c.5.11.68	Lough Corrib: c.53°25'N. 9°15'W. (Galway)
ad.♀	24.6.64	near Gällivara: 67°22'N. 21°41'E. (Lappland) <b>Sweden</b>
×	6.11.68	Loch Leven: 56°12'N. 3°25'W. (Kinross)
pull.	23.5.67	near Lungsund: 59°36'N. 14°11'E. (Värmland) <b>Sweden</b>
+	25.1.68	Cliffe: 51°28'N. 0°30'E. (Kent)

**Nomateria** *mollissima*

pull.♂	26.7.67	Vlieland: 53°17'N. 5°02'E. (Frisian Islands) <b>Netherlands</b>
×(oil)	0.10.68	Holy Island: 55°41'N. 1°48'W. (Northumberland)
pull.	13.7.65	East Vlieland: 53°18'N. 5°04'E. (Frisian Islands) <b>Netherlands</b>
v	15.8.67	De Cocksdorp: 53°09'N. 4°53'E., Texel (Frisian Islands) <b>Netherlands</b>
×(oil)	23.3.69	Withernsea: 53°45'N. 0°00' (York)

the second and third foreign-ringed Eiders to be recovered in Britain, support to the idea that the majority of Eiders seen in eastern and southern England are of Dutch origin, as did the first recovery, a Vlieland bird found in 1964. Publication of the 1969 recovery has been advanced so that it is seen in context.

**oder** *Mergus merganser*

pull.	1.7.59	Ottenby: 56°12'N. 16°24'E. (Öland) <b>Sweden</b>
×	10.1.62	Little Wigborough: 51°48'N. 0°51'E. (Essex)

**ck** *Tadorna tadorna*

pull.	2.7.67	Viken: 56°09'N. 12°34'E. (Malmöhus) <b>Sweden</b>
×	20.1.68	Mersea Island: 51°47'N. 0°54'E. (Essex)

**ag Goose** *Anser anser*

ringed at Skípalón: 65°47'N. 18°12'W. (Eyjafjardar), Iceland, were released as follows:

Ringed		Recovered
18.7.64	27.1.68	Firth of Tay: c.56°20'N. 3°20'W. (Perth)
26.7.66	2.1.69	near Aberuthven: 56°19'N. 3°40'W. (Perth)
4.8.67	14.1.69	Loch Fingask: 56°35'N. 3°23'W. (Perth)
4.8.67	0.1.68	Carsebreck: 56°16'N. 3°51'W. (Perth)
4.8.67	0.1.68	Carsebreck

14762 were ringed as pulli, the others as full-grown.

**fronted Goose** *Anser albifrons*

ad.♀	14.12.63	Gaastmeer: 52°58'N. 5°34'E. (Friesland) <b>Netherlands</b>
+	14.12.68	Holy Island: 55°41'N. 1°48'W. (Northumberland)

usual for this species to be recovered in north-east England.

**Pink-footed Goose** *Anser fabalis brachyrhynchus*

Rk.	pull.	22.7.51	Thjórsárver: 64°33'N. 18°47'W., Iceland
21181	v	21.7.53	Thjórsárver, Iceland
	+	19.10.68	Cockerham: 53°59'N. 2°50'W. (Lancashire)

This one was selected for its longevity interest.

**Barnacle Goose** *Branta leucopsis*

As	ad.	0.7.62	Hornsund: 67°00'N. 14°30'E., Spitsbergen
20387	v	2.2.63	Caerlaverock: 54°58'N. 3°26'W. (Dumfries)
	×	25.4.68	Huftarøy: 60°02'N. 5°12'E. (Hordaland) Norway

An interesting multiple recovery, indicating spring migration route.

**Mute Swan** *Cygnus olor*

P.	juv.	12.9.65	Olivet: 47°52'N. 1°54'E. (Loiret) France
CF4223	×	28.3.68	Walland Marsh: 50°58'N. 0°50'E. (Kent)

**Whooper Swan** *Cygnus cygnus*

Birds ringed at Arnarvatnsheidi: 64°54'N. 20°35'W. (Mýrasýsla), Iceland, were recovered as follows:

Ringed			Recovered
Rk.0192	4.8.65	27.2.68	Eckford: 55°31'N. 2°28'W., Kelso (Roxburgh)
Rk.0221	6.8.65	26.12.68	Lough Gill: 52°15'N. 10°02'W. (Kerry)
Rk.0254	14.8.65	0.11.67	Invergordon: 57°42'N. 4°10'W. (Ross)
Rk.0260	14.8.65	25.11.66	South Slob: 52°19'N. 6°30'W. (Wexford)
Rk.0321	14.8.65	13.3.68	Lough Caragh: 52°05'N. 9°51'W. (Kerry)
Rk.0353	16.8.65	0.12.66	near Castlerock: 53°46'N. 8°29'W. (Roscommon)
Rk.0355	18.8.65	(10.11.69)	Murchar: 57°13'N. 2°03'W., near Aberdeen
Rk.0398	18.8.65	15.1.67	Loch Ryan: 54°55'N. 5°00'W. (Wigtown)
Rk.0422	14.8.65	0.11.65	Kildrummy: 57°14'N. 2°54'W. (Aberdeen)

0221 and 0353 were ringed as pulli, the others as full-grown.

**Sparrowhawk** *Accipiter nisus*

B.	ad.♂	20.10.66	Assebroek: 51°12'N. 3°16'E. (West Flanders) Belgium
3Z8628	×	0.1.68	Snodland: 51°20'N. 0°27'E. (Kent)

**Kestrel** *Falco tinnunculus*

B.	juv.♀	24.10.68	Tongeren: 50°47'N. 5°28'E. (Limburg) Belgium
E25466	×	22.11.68	Sherkin Island: 51°28'N. 9°25'W. (Cork)

**Water Rail** *Rallus aquaticus*

Pg.	juv.	9.7.67	near Ceska Lipa: 50°37'N. 14°34'E. (Liberec) Czechoslovakia
H34532	×	8.11.68	Weymouth: 50°36'N. 2°28'W. (Dorset)

**Moorhen** *Gallinula chloropus*

A.	juv.	19.8.66	Oudesluis: 52°50'N. 4°47'E. (Noord Holland) Netherlands
3063671	×	late 3.68	Swallowfield: 51°23'N. 0°57'W. (Berkshire)
A.	juv.	9.1.68	Oudesluis, Netherlands
4039201	+	21.1.68	Wittersham: 51°01'N. 0°43'E. (Kent)
A.	juv.	20.11.68	Oudesluis, Netherlands
4044683	v	7.12.68	Heacham: 52°55'N. 0°30'E. (Norfolk)

**Lapwing** *Vanellus vanellus*

Hki.	pull.	2.6.67	near Hämeenlinna: 60°58'N. 24°28'E. (Häme) Finland
B67152	×	1.12.68	Southwold: 52°20'N. 1°40'E. (Suffolk)
He.	pull.	3.5.65	Rathenow: 52°36'N. 12°21'E. (Potsdam) Germany
5004406	×	14.11.68	Hapsford: 53°16'N. 2°46'W. (Cheshire)

**Ringed Plover** *Charadrius hiaticula*

	pull.	16.6.63	Paaniemi: 66°29'N. 25°40'E. (Lappi) <b>Finland</b>
91	×	15.5.66	Leiston: 52°12'N. 1°35'E. (Suffolk)
	pull.	9.7.68	near Utsjoki: 69°25'N. 25°50'E. (Lappi) <b>Finland</b>
161	×	11.9.68	River Ribble estuary: 53°44'N. 2°54'W. (Lancashire)
	ad.♂	16.6.66	Wangerooge: 53°47'N. 7°51'E. (East Friesian Islands)
741			<b>Germany</b>
	v	2.3.68	Snettisham: 52°53'N. 0°30'E. (Norfolk)

**Green Plover** *Pluvialis apricaria*

	(age?)	26.7.62	near Hörgárdalur: 65°39'N. 18°26'W. (Eyjafjardar) <b>Iceland</b>
6	+	18.10.68	near Annan: 54°59'N. 3°16'W. (Dumfries)

**Stone Plover** *Arenaria interpres*

	pull.	1.7.66	Tranøy: 69°09'N. 17°25'E. (Troms) <b>Norway</b>
44	v	24.8.68	Middleton: 54°00'N. 2°55'W. (Lancashire)

**Snipe** *Lymnocyptes minimus*

	f.g.	15.5.67	Tauvo: 64°49'N. 24°35'E., Siikajoki (Oulu) <b>Finland</b>
iro	+	0.1.68	near Chew Valley Lake: 51°20'N. 2°38'W. (Somerset)
	f.g.	8.4.68	near Marburg: 50°49'N. 8°40'E. (Hessen) <b>Germany</b>
089	+	14.12.68	near Waltham Abbey: 51°42'N. 0°01'E. (Essex)

**Woodcock** *Scolopax rusticola*

	pull.	18.6.59	Fristad: 57°50'N. 13°01'E. (Västergötland) <b>Sweden</b>
55	+	27.12.61	Alresford: 51°52'N. 0°59'E. (Essex)
	pull.	29.5.66	Fjärås: 57°27'N. 12°11'E. (Halland) <b>Sweden</b>
4	+	27.12.68	Barningham: 54°29'N. 1°52'W., Richmond (York)
	pull.	14.7.68	near Hurdal: 60°26'N. 10°51'E. (Akershus) <b>Norway</b>
	+	0.11.68	northern County Longford: 53°50'N. 7°40'W.
	pull.	16.7.68	Hurdal: 60°24'N. 11°03'E. (Akershus) <b>Norway</b>
	+	28.12.68	Cowan Bridge: 54°11'N. 2°33'W. (Lancashire)

**Numenius** *Numenius phaeopus*

	f.g.	6.5.65	Brasschaat: 51°17'N. 4°27'E. (Antwerpen) <b>Belgium</b>
	+	9.9.68	Fitzworth: 50°42'N. 2°00'W., Poole (Dorset)

**Thrush** *Tringa totanus*

	f.g.	24.7.64	near Midnes: 64°04'N. 22°43'W. (Gullbringu) <b>Iceland</b>
	×	0.1.68	Southport: 53°39'N. 3°01'W. (Lancashire)
	pull.	7.7.67	Lambavatn: 65°30'N. 24°07'W. (Vestur-Bardastrandar) <b>Iceland</b>
	×	29.9.67	near Port Glasgow: 55°56'N. 4°44'W. (Renfrew)
	ad.	10.9.64	Vlieland: 53°16'N. 4°59'E. (Frisian Islands) <b>Netherlands</b>
8	×	25.2.68	St Osyth: 51°49'N. 1°05'E. (Essex)

**Lin** *Calidris alpina*

	f.g.	8.9.67	Vadso: 70°04'N. 29°48'E., Sor-Varanger (Finnmark) <b>Norway</b>
	v	27.7.68	Harty: 51°22'N. 0°55'E., Sheppey (Kent)

is the most northerly origin yet for a foreign-ringed Dunlin found in Britain.

**Skua** *Stercorarius skua*

	pull.	1.8.67	Hofshreppur: 63°54'N. 16°36'W. (Austur-Skaftafells) <b>Iceland</b>
	×	29.10.67	Lowsey Point: 54°09'N. 3°14'W., Barrow-in-Furness (Lancashire)



**Great Black-backed Gull** *Larus marinus*

<i>As</i>	pull.	7.7.66	Tranøy: 69°08'N. 17°25'E. (Troms) <b>Norway</b>
31996	+	24.4.68	Tarland: 57°08'N. 2°52'W. (Aberdeen)
<i>As</i>	pull.	1.6.68	Tranøy, <b>Norway</b>
34173	×	(16.12.68)	Douglas: 54°09'N. 4°29'W., Isle of Man
<i>Stav.</i>	pull.	5.6.60	Orrevatnet: 58°44'N. 5°33'E., Klepp (Rogaland) <b>Norway</b>
311302	×	17.11.66	Teesmouth: 54°37'N. 1°09'W. (York)

**Lesser Black-backed Gull** *Larus fuscus*

<i>As</i>	pull.	17.7.67	Hvaler: 58°59'N. 10°57'E. (Østfold) <b>Norway</b>
45165	×	25.5.68	Rotherham: 53°26'N. 1°20'W. (York)

**Herring Gull** *Larus argentatus*

<i>As</i>	pull.	1.7.67	Reinøya: 70°18'N. 31°07'E., Vardø (Finnmark) <b>Norway</b>
43805	v	12.4.68	off Wick: c.58°20'N. 2°55'W. (Caithness)
O.	pull.	20.6.66	Tranøy: 69°13'N. 17°25'E. (Troms) <b>Norway</b>
028381	v (sick)	26.12.66	Titchwell: 52°58'N. 0°37'E. (Norfolk)

**Common Gull** *Larus canus*

<i>M.</i>	(age?)	7.7.61	Onega Gulf: c.64°30'N. 37°00'E. (Arkhangel) <b>U.S.S.R.</b>
M75003	×	(24.1.68)	Breydon Water: 52°37'N. 1°42'E. (Norfolk)

Recoveries from Russia proper are distinctly unusual.

**Mediterranean Gull** *Larus melanocephalus*

<i>He.</i>	pull.	7.6.66	Insel Riems: 54°11'N. 13°22'E. (Mecklenburg) <b>Germany</b>
5007703	v (nesting)	2.6.68	Needs Oar Point: 50°47'N. 1°24'W. (Hampshire)

This totally unexpected recovery is as notable for its ringing locality as for its recovery circumstances. The normal breeding range of this gull is in Greece, Turkey and along the Russian shore of the Black Sea; there have been isolated nestings in Hungary (1953 onwards), the Netherlands (several years since 1959), Belgium (1964 and 1969) and France (1965), while since 1963 a few pairs have bred, isolated from the main population, on the German side of the Baltic. Now a chick reared in the latter area is found breeding (paired with a Black-headed Gull) in Hampshire. Full details of Mediterranean Gulls breeding in Hampshire were published earlier in this volume (*Brit. Birds*, 63: 67-79).

**Little Gull** *Larus minutus*

<i>Hki.</i>	pull.	20.6.67	near Riistavesi: 62°53'N. 28°14'E. (Kuopio) <b>Finland</b>
B76780	×	autumn 68	Carriston Reservoir: 56°13'N. 3°06'W., Markinch (Fife)

**Black-headed Gull** *Larus ridibundus*

<i>Rk.</i>	pull.	25.6.66	Skipalón: 65°47'N. 18°12'W. (Eyjafjardar) <b>Iceland</b>
511218	×	9.5.68	Aberdeen: 57°10'N. 2°04'W.
<i>Rk.</i>	pull.	25.6.67	Skipalón, <b>Iceland</b>
511424	×	15.1.68	Stromness: 58°57'N. 3°18'W. (Orkney)
<i>P.</i>	pull.	14.5.67	Etang de Marcilly: 47°31'N. 5°09'E. (Loir & Cher) <b>France</b>
FS2646	×	27.12.67	Barnes Reservoir: 51°28'N. 0°15'W. (Surrey)
<i>P.</i>	pull.	6.6.68	Rosnay: 46°42'N. 1°13'E. (Indre) <b>France</b>
FN7786	×	7.9.68	St Kew Highway: 50°33'N. 4°45'W. (Cornwall)

The last two are only the fourth and fifth French-ringed pulli found in Britain; and there are surprisingly few recoveries here of Icelandic Black-headed Gulls.

**Hiitiwake** *Rissa tridactyla*

near.	pull.	4.8.65	Runde: 62°25'N. 5°38'E., Herøy (Møre & Romsdal) Norway
33952	×	(1.3.66)	East Mersea: 51°48'N. 1°00'E. (Essex)

**Common Tern** *Sterna hirundo*

ad.	18.5.68	Hoeke: 51°17'N. 3°20'E. (West Flanders) Belgium
37779	×	near Wakefield: 53°40'N. 1°30'W. (York)

**Arctic Tern** *Sterna paradisaea*

pull.	1.7.66	Smågrund: 62°17'N. 21°20'E. (Vaasa) Finland
302292	×	Newburgh: 57°19'N. 2°01'W. (Aberdeen)
pull.	17.7.66	Rödsjär: 60°06'N. 21°20'E., Korpo (Turku & Pori) Finland
314345	×	Poole Harbour: 50°43'N. 2°00'W. (Dorset)
pull.	9.6.68	Tjørneholm: 54°39'N. 11°36'E. (Lolland) Denmark
39744	×	Cresswell: 55°12'N. 1°31'W. (Northumberland)
pull.	26.6.54	near Heiligenhafen: 54°23'N. 11°00'E. (Schleswig-Holstein)
38479		Germany
×	16.7.68	Marsden: 54°58'N. 1°21'W., South Shields (Durham)

**Guillemot** *Uria aalge*

Birds ringed as pulli on Heligoland: 54°11'N. 7°55'E., Germany, were recovered as follows:

Ringed		Recovered	
337815	1.7.61	19.8.62	Montrose: 56°43'N. 2°29'W. (Angus)
390624	6.7.62	c.31.3.63	Bigbury-on-Sea: 50°17'N. 3°54'W. (Devon)
3019071	2.7.64	20.6.66	Burnmouth: 55°51'N. 2°06'W. (Berwick)
3019223	3.7.64	20.7.66	Burnmouth
3019369	8.7.66	15.1.67	Hemsby: 52°42'N. 1°41'E., Great Yarmouth (Norfolk)
3019441	9.7.66	(3.8.68)	Salthouse: 52°57'N. 1°03'E. (Norfolk)
3019503	10.7.66	18.7.67	Seaham Harbour: 54°50'N. 1°20'W. (Durham)

**Collared Dove** *Streptopelia decaocto*

f.g.	14.1.67	Released Ambacht: 51°51'N. 4°38'E. (Zuid Holland)
37299		Netherlands
+	19.5.68	Syerscote: 52°40'N. 1°40'W., Tamworth (Stafford)
f.g.	2.1.65	Released Ede: 52°02'N. 5°40'E. (Gelderland) Netherlands
24602	+	31.8.68 Marchwood: 50°53'N. 1°27'W. (Hampshire)
juv.	14.12.64	Wijnegem: 55°14'N. 4°32'E. (Antwerpen) Belgium
2876	v	12.9.65 Ilford: 51°33'N. 0°06'E. (Essex)
	v	20.2.68 Ilford
ad.	17.4.66	Watermaal: 50°49'N. 4°24'E. (Brabant) Belgium
35557	v	31.3.68 Aigburth: 53°22'N. 2°56'W., Liverpool (Lancashire)

**Long-eared Owl** *Asio otus*

pull.	8.6.68	Staphorst: 52°38'N. 6°12'E. (Overijssel) Netherlands
34787	v (sick)	29.12.68 near Southampton: 50°58'N. 1°31'W. (Hampshire)

**Short-eared Owl** *Asio flammeus*

pull.	27.5.66	Lende: 58°43'N. 5°46'E., Time (Rogaland) Norway
3762	×	12.11.66 Wirral peninsula: c.53°25'N. 3°05'W. (Cheshire)

**Fieldfare** *Turdus pilaris*

pull.	11.6.61	near Abborrträsk: 65°21'N. 19°20'E. (Lapland) Sweden
3066	×	(4.2.62) Stockport: 53°25'N. 2°10'W. (Cheshire)
		pellet)

<i>Hki.</i>	juv.	10.6.62	near Toholampi: 63°40'N. 24°20'E. (Vaasa) <b>Finland</b>
<i>A126939</i>	×	0.12.67	near Wakefield: 53°40'N. 1°30'W. (York)

**Song Thrush** *Turdus philomelos*

<i>St.</i>	juv.	28.8.66	Lake Östen: 58°34'N. 13°55'E. (Västergötland) <b>Sweden</b>
<i>4035025</i>	×	20.1.68	Winchelsea: 50°55'N. 0°42'E. (Sussex)

This was the most northerly origin for 1968 Song Thrush recoveries.

**Redwing** *Turdus iliacus*

<i>Rk.</i>	f.g.	7.10.61	Reykjavik: 64°08'N. 21°56'W. (Gullbringu) <b>Iceland</b>
<i>820275</i>	×	0.1.62	Dingle: 52°08'N. 10°15'W. (Kerry)
<i>Rk.</i>	f.g.	15.10.66	Reykjavik, <b>Iceland</b>
<i>831109</i>	+	winter 66/67	Patrick's Well: 52°36'N. 8°42'W. (Limerick)
<i>Rk.</i>	f.g.	28.10.65	Akureyri: 65°41'N. 18°05'W. (Eyjafjardar) <b>Iceland</b>
<i>716901</i>	()	13.12.66	near Robertstown: 53°16'N. 6°49'W. (Kildare)
<i>Hki.</i>	juv.	14.7.67	near Tauvo: 64°49'N. 24°35'E. (Häme) <b>Finland</b>
<i>A336127</i>	×	(car) 7.1.68	Hessle: 53°44'N. 0°26'W., Hull (York)

**Redstart** *Phoenicurus phoenicurus*

<i>Stav.</i>	f.g.♀	10.9.68	Revtangen: 58°45'N. 5°30'E. (Rogaland) <b>Norway</b>
<i>9178219</i>	×	14.9.68	Constellation Oil Rig: 53°00'N. 2°40'E., North Sea

**Robin** *Erithacus rubecula*

<i>St.</i>	f.g.	28.9.62	Ottenby: 56°12'N. 16°24'E. (Öland) <b>Sweden</b>
<i>1131298</i>	×	14.10.62	Holland-on-Sea: 51°48'N. 1°13'E. (Essex)
<i>Stav.</i>	juv.	16.7.68	near Hareid: 62°21'N. 5°55'E. (Møre & Romsdal) <b>Norway</b>
<i>9159318</i>	×	28.9.68	Southampton: 50°55'N. 1°25'W. (Hampshire)

**Sedge Warbler** *Acrocephalus schoenobaenus*

<i>A.</i>	f.g.	18.8.65	Vlieland: 53°16'N. 4°58'E. (Frisian Islands) <b>Netherlands</b>
<i>S86733</i>	v	21.5.68	The Calf: 54°03'N. 4°49'W., Isle of Man
<i>B.</i>	juv.	24.7.67	Harchies: 50°29'N. 3°41'E. (Hainaut) <b>Belgium</b>
<i>10A56441</i>	v (breeding)	4.8.68	Cheriton: 51°05'N. 1°08'E., Folkestone (Kent)
<i>J.</i>	f.g.	6.8.67	Le Marais: 49°29'N. 2°31'W. (Guernsey) <b>Channel Islands</b>
<i>V7584</i>	×	(car) 18.5.68	Loch Watten: 58°29'N. 3°20'W. (Caithness)

**Whitethroat** *Sylvia communis*

<i>B.</i>	f.g.	23.8.67	Esch-sur-Alzette: 49°30'N. 6°00'E., <b>Luxembourg</b>
<i>12A82557</i>	v♂	21.4.68	Bardsey Island: 52°46'N. 4°48'W. (Caernarvon)

**Blackcap** *Sylvia atricapilla*

<i>B.</i>	pull.	10.7.68	Wanzc: 50°32'N. 5°13'E. (Liège) <b>Belgium</b>
<i>5V37658</i>	v	24.10.68	Fair Isle: 59°32'N. 1°37'W. (Shetland)
<i>Stav.</i>	f.g.♂	29.9.67	Revtangen: 58°45'N. 5°30'E. (Rogaland) <b>Norway</b>
<i>9168187</i>	×	(cat) 28.1.68	Amberley: 51°43'N. 2°13'W., Stroud (Gloucester)

Both these recoveries are noteworthy. The Belgian bird moved a long distance to the north in autumn; while the Norwegian one demonstrates that the Blackcaps which overwinter in this country are not necessarily of the British breeding stock. In the latter context, see also *Brit. Birds*, 55: 554 for a record of an Austrian-ringed Blackcap recovered in Co. Wicklow in December.

**Firecrest** *Regulus ignicapillus*

<i>B.</i>	ad.	10.11.68	Koksijde: 51°06'N. 2°39'E. (West Flanders) <b>Belgium</b>
<i>A310014</i>	v♀	26.11.68	Minsmere: 52°14'N. 1°37'E. (Suffolk)

This is the first foreign-ringed Firecrest to be recovered in Britain.

**Goldcrest** *Regulus regulus*

juv.♂	17.10.68	Serrahn: 53°20'N. 13°14'E., Neustrelitz (Mecklenburg)
2254961		<b>Germany</b>
v	3.11.68	High Halstow: 51°27'N. 0°34'E. (Kent)

**Red Flycatcher** *Ficedula hypoleuca*

f.g.	17.8.68	Heemskerk: 52°32'N. 4°37'E. (Noord Holland) <b>Netherlands</b>
220193	× (cat)	White Roding: 51°48'N. 0°16'E. (Essex)

**Red/White Wagtail** *Motacilla alba*

f.g.	13.10.67	Anglet: 43°29'N. 1°32'W. (Basses Pyrénées) <b>France</b>
1112228	+	Prestonpans: 55°57'N. 3°00'W. (East Lothian)

**Greenfinch** *Carduelis chloris*

f.g.♀	7.1.68	Heligoland: 54°11'N. 7°55'E., <b>Germany</b>
417631	v	Spurn Point: 53°35'N. 0°06'E. (York)
juv.♂	29.7.67	Ieper: 50°51'N. 2°53'E. (West Flanders) <b>Belgium</b>
472489	× (car)	Welwick: 53°40'N. 0°01'E. (York)

**Redpoll** *Acanthis flammea*

juv.♂	22.10.67	Kennemerduinen: 52°25'N. 4°34'E. (Noord Holland)
45637		<b>Netherlands</b>
×	15.10.68	Bangor: 54°40'N. 5°40'W. (Down)

**Chaffinch** *Fringilla coelebs*

f.g.♀	2.10.66	Rybatschi: 55°11'N. 20°49'E. (Kaliningrad) <b>U.S.S.R.</b>
922338	v	Maltby: 53°26'N. 1°11'W., Doncaster (York)
juv.♂	12.9.67	near Luvia: 61°29'N. 21°21'E. (Turku & Pori) <b>Finland</b>
900348	v	Huddersfield: 53°39'N. 1°47'W. (York)

These were the most northerly origins for 1968 Chaffinch recoveries.

**Hambling** *Fringilla montifringilla*

juv.♂	21.10.68	Revtangen: 58°45'N. 5°30'E. (Rogaland) <b>Norway</b>
46695	v	North Ronaldsay: 59°23'N. 2°26'W. (Orkney)

**Tree Sparrow** *Passer montanus*

f.g.	21.10.68	Cap Gris Nez: 50°52'N. 1°35'E. (Pas de Calais) <b>France</b>
77470	v	Beddington: 51°23'N. 0°08'W., Croydon (Surrey)

Albert Hudson, *British Trust for Ornithology, Beech Grove, Tring, Hertfordshire*

## Notes

**Inland flying of Common Scoters** On 20th October 1969, a fine calm day with excellent visibility, I was watching a flock of 500 Common Scoters *Melanitta nigra* with a few Pochard *Aythya ferina* resting on the calm water in the mouth of the Swale off Shell Ness, Isle of Sheppey, Kent. Occasionally 100-200 would fly up and circle high, eventually coming down again at the same spot. Then about an hour before sunset some 300 of these Scoters and two Pochard, after a good deal of circling to and fro, reached a great height and set off



inland, in a direction west-by-north, in a single long wavering line. I followed them through binoculars and a telescope until they finally all disappeared from sight, still heading inland in the same general direction.

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Although this note was prompted by K. G. Spencer's (*Brit. Birds*, 62: 332-333), a study of the geography of north Kent reveals that this observation is hardly comparable with the latter's records of scoter flocks up to 40 miles inland in northern England. According to W. F. A. Buck, former editor of the *Kent Bird Report*, however, it is still a most unusual occurrence. EDS

**Redshank and Greenshank plunge-bathing from the air** On 12th August 1969, at Ffynnongroew, Flintshire, I was watching a flock of gulls *Larus spp* bathing in a shallow stream flowing over mud, when a Redshank *Tringa totanus* joined them, waded up to its belly, and began to bathe by wing-thrashing and head-dipping. Several times, too, it plunged from a height of a few feet in an erratic and 'demented' manner, so that the side or back of its body hit the water first; each plunge resulted in complete or nearly complete submergence for a few seconds. It then briefly preened its breast feathers and flew off without feeding. On the next day, at Llyn Helyg, Flintshire, I watched a Greenshank *T. nebularia* with a flock of Lapwings *Vanellus vanellus*; it bathed by similar erratic plunging, but complete submergence did not occur (the water was shallow) and I saw no wing-thrashing or head-dipping. The Lapwings did not plunge. K. G. Spencer, T. E. D. Harrison and B. King (*Brit. Birds*, 44: 414-415) described diving or submergence by Common Sandpipers *T. hypoleucos* in connection with bathing, but otherwise I have found no reference to such erratic plunging by bathing waders.

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H. E. Axell, warden for the Royal Society for the Protection of Birds at Minsmere, Suffolk, has commented: 'The lack of published descriptions of this behaviour is perhaps surprising. In my experience many species plunge from the air into water in the frenzied manner described by Mr Kennedy. On various occasions I have seen Teal *Anas crecca*, Black-headed Gulls *Larus ridibundus*, Spotted Redshanks *T. erythropus*, Redshanks, Greenshanks, Green Sandpipers *T. ochropus* and Common Sandpipers bathing in exactly this way.' EDS

**Carriion Crow apparently attacking its reflection** In mid-May 1969, on arrival at my cottage at Llanfachreth, Merioneth, after an absence of ten days, I found the outside sills of seven windows covered in

bird droppings and the glass heavily smeared. Next morning I was aroused by a loud banging on a window-pane by a Carrion Crow *Corvus corone*. A light-coloured object was placed inside each window, and this kept the offender away for our stay of ten days. Some of my relatives arriving on the day after my departure, however, found the windows smeared as before; they were similarly awakened on the following morning, but were not troubled subsequently. They left on 2nd June, and when a third group arrived five days later not only were the windows heavily smeared with droppings but one pane (measuring 14 by 13 inches) had been badly cracked, presumably by the crow which must have struck it with considerable force. Redstarts *Phoenicurus phoenicurus* and Pied Wagtails *Motacilla alba* nesting in the wall of the cottage had also been seen to attack the neighbouring window-panes, but the nearest Carrion Crow nest-site was a few hundred yards away. The bird must have spent many hours at this activity, and had returned at the first opportunity after an enforced absence of nine days. In this case defence of territory seems an unlikely explanation for the crow's extraordinary persistence.

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Aggression towards their own reflection has been noted in a number of species, especially Pied and Grey Wagtails *M. cinerea*, but this is rather an extreme case especially if, as seems likely, the crow cracked the glass in the ferocity of its attack. EDS

**The song of Radde's Warbler** Under 'Voice' in *The Handbook* (2: 26), B. W. Tucker said of Radde's Warbler *Phylloscopus schwarzi*: 'Song described as a loud, warbling trill (B. Stegmann), resembling that of Dusky Warbler, but more varied (B. Dybowski)'. Irene Neufeldt (*Brit. Birds*, 53: 117-122) stated that the male, from a conspicuous position, 'sings all day long, though more intensively in the mornings', but gave no description of the song. E. S. Ptushenko (1951-54, *The Birds of the Soviet Union*, edited by G. P. Dementiev and N. A. Gladkov, 6: 212; however, stated (translation by D. D. Harber, 'The brief, resonant, loud song is somewhat reminiscent of the first part of the song of the Chaffinch or rather the notes of a young Chaffinch beginning to sing for the first time, but is distinguished by a special tonality'.

A recording of its song has been published, running for 1 minute, 18 seconds, and consisting of eight song-phrases (Boris N. Veprintsev and Zapisy R. Naomova, 1964, *The Voices of Birds in Wild Nature*, 3: *Birds of Siberia*, published by the All-Union Studio of Disc Recording, Moscow, U.S.S.R.). The brevity and loudness of the phrases are certainly very noticeable. I was also, struck, however by the variations in quality, pitch and structure. One trill is quite harsh; other trills—

one in particular—have the throaty richness of a Nightingale *Luscinia megarhynchos*. This is doubtless Ptushenko's 'resonant' and 'special tonality'. The pitch varies slightly and, as to structure and tempo, the trills vary in speed and in one song a fast Wren-like trill is prefaced by two distinct notes. Dybowski (see above) described the song as resembling that of the Dusky Warbler *P. fuscatus* 'but more varied'. The latter was described by E. V. Kozlova in *The Handbook* (2: 24) as 'monotonous', and by Ptushenko (*op. cit.*, 6: 209) as 'of the leaf warbler type, short and resonant, consisting of a loud whistling *tyee . . . tyee . . . tyee . . . tyee-ee-ee* and finishing with a trill'. I suspect, however, that these variations are minor from the standpoint of the field ornithologist, and that Ptushenko's description, doubtless based on hearing a number of individuals, holds good. From the evidence available, a succinct description of the song of Radde's Warbler might read: 'a very brief loud trill, somewhat variable in quality but usually pleasingly resonant, uttered at about ten second intervals'.

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**The song of the Pine Bunting** Under 'Voice' in *The Handbook* (1: 117), B. W. Tucker said of the Pine Bunting *Emberiza leucocephala*: 'Accounts of *song* contradictory; according to Radde somewhat like Chaffinch, but with bunting-like rhythm, but von Tschusi found song of captive bird had nothing bunting-like about it, but suggested the "recording" of a young Robin, with fine, prolonged, melancholy notes'. It is, therefore, worth drawing attention to a published sound recording of a vagrant individual trapped in Upland, central Sweden, on 18th January 1959 and later tape recorded in captivity (S. Palmér, 1963, *Radions Fågel Skivor*, one 7-inch 45 r.p.m. gramophone record no. RFEP 222, side 1, band 3, published by Sveriges Radio, Stockholm, Sweden). The species nests in east European Russia and Asia, and E. S. Ptushenko (1951-54, *The Birds of the Soviet Union*, edited by G. P. Dementiev and N. A. Gladkov, 5: 395) said (translation by D. D. Harber): 'Its song is very similar to that of a Yellowhammer *Emberiza citrinella*'. This is only to be expected if, as K. H. Voous (1960, *Atlas of European Birds*) suggested, they may be conspecific; C. Vaurie (1959, *The Birds of the Palearctic Fauna*, 1: 674) said: 'Hybridizes with *E. citrinella* in Western Siberia'. Palmér's sound recording confirms the Soviet description; the tempo of the notes in the phrase is similar: one short note repeated, followed by a single, longer, different note.

I have compared this recording with others of Yellowhammers made in Scotland, England, France, Germany and Russia (near Moscow), and can detect no difference between the songs of the two species that is likely to be of value to the field ornithologist. Palmér's recording of the Pine Bunting sounds to me a little lower pitched,

rather harsher and perhaps a little briefer than the Yellowhammers' songs with which it was compared. It must be remembered, however, that the Yellowhammer's song is variable: one individual may sing up to six different versions of its phrase (P. Marler, 1959, in *Darwin's Biological Work* . . . , ed. P. R. Bell). J. S. Huxley (*Brit. Birds*, 40: 162-164) has also written of phrase variation by individual singers, and of differences between individuals. There may also be geographical variation: Carl Weismann (1947, 1950, *Voice Recordings of Danish Birds*, nos. 4 & 13) has issued gramophone records purporting to show song differences between Danish mainland Yellowhammers and those on the Baltic island of Bornholm.

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## Reviews

**The Environmental Revolution.** By Max Nicholson. Hodder and Stoughton, London, 1970. 366 pages; 70 black-and-white photographs; 8 text-figure maps and 2 coloured end-paper maps of the world. 84s.

Several statements of objective emerge as the author unrolls the story and argument of this timely book with his customary mixture of strategic and tactical insight. All of them, however, are essentially variations on the theme that 'harmony between man and nature is no longer a mystical and abstract but a practical and pressing matter' and lead up to a definition of conservation as 'all that man thinks and does to soften his impact upon his natural environment and to satisfy his own true needs while enabling that environment to continue in healthy working order'. It is a matter of interest that the approach to these themes, and to the critical problems and responsibilities they involve, is so clearly ascribed in the opening chapter to the author's own odyssey as an ornithologist. The early stages of the latter played no small part in the fact that bird protectionists have been 'the earliest and, at least until very recently, the most energetic and successful arm of the world conservation movement'.

Although ornithologists would therefore be the first to agree that conservation is an 'idea whose time has come', few would yet claim to have a complete understanding of how and why this has been brought about and of its implications. Here is the book to help them towards it. Its effect is rather like that of a first handbook on the birds of some region for which hitherto all that has been available are the bird lists of casual visitors, descriptions of a few new species or races, and the scrappy information selected by encyclopaedias. For, with equal attention to broad issues and detail, illuminating example, aphorism and witty shafts, mostly of the more barbed variety, a



comprehensive and coherent picture is presented and a mass of material slotted into place in a manner worthy of the 'computer age'. The significance of the latter, incidentally, is a major theme of this book, though perhaps it never quite disposes of the difficulty that man tends to be the pig in the computer's poke as in all his other enterprises. Views, always worth pondering and often arrestingly perceptive, are in fact expressed on almost every environmental issue and *cause célèbre* of recent years and, thanks to an excellent index, can be referred to easily. Only very rarely, and mainly, no doubt, because of the exigencies of compression, are they open to some criticism for superficiality (as in the acceptance of the popular assessment of the Groundnut Scheme), or for a tendency to overstatement (as in the strictures on the capability of a classical outlook and education in the face of the technical problems of environmental management). After all, much of the book is classically orientated and none the worse for it, not excluding its reinvigorated spelling of English, for which a persuasive and entertaining case is presented in an appendix.

Broadly speaking, the book falls into three sections: the first two, which to some extent are combined and take up some four-fifths of its length, constitute a history and analysis of man's impact on nature and nature's reaction and, secondly, of the rise and recognition of the conservation movement; the third section looks at the present state of play and the way ahead. The first section includes not only what can aptly be termed the *tour de force* of a chapter headed 'Seven circuits of the earth', in which the planet is viewed and summarised through the eyes of an 'astronautical ecologist', but also three out of the four groups of illustrations—a skilfully diversified and evocative visual presentation of Man's Impact, the Natural Environment and the Emergence of Landscape. It also includes two detailed appendices, each supported by an end-paper map, charting and tabulating the Vegetational Cover of the Earth and Human Impacts on the Country-side. Unfortunately, the maps are of less use than they should be, due to faulty colour reproduction; other signs of over-hasty processing are a smatter of misprints and erroneous cross-references—the renaming of Kilimanjaro as 'Mount Tanganyika' under one of the photographs and the attribution of Kilimanjaro to Kenya in the index could be a *casus belli* in other contexts! These are minor cavils, however, and in this section of the book there is an enormous amount to be learned and inwardly digested by British ornithologists, not least in the chapter headed The Marks of Man, which discusses some forms of disturbance of the environment of which not even the most conservation-minded may yet be sufficiently careful. As ornithological research ranges ever further afield, the classification of world vegetation cover should be another item of special interest and add to the value of the book for reference.

Not only the ornithologists, but the many others who have often been confused or disheartened by apparent contradictions and fissiparous tendencies in the conservation movement, will find that the second subdivision of the book (including its relevant set of illustrations entitled *The World of Conservation*), which gives the inside story of the progress of the movement in Britain, America and internationally by one who without question is uniquely well-qualified to tell it, does much to restore order and a sense of purpose. Perhaps it is inevitable, however, that the crystal-gazing process of interpreting and applying this purpose to the future, in the third and final section, is the most difficult, and sometimes controversial or pessimistic, part of the book. Nevertheless it contains pointers in plenty which people and governments can no longer afford to ignore—in its emphasis, for example, on the principle that all major development projects ‘must be planned *from the outset* with full knowledge of and regard for their total environmental repercussions’. That the establishment of this crucial principle is now not only a more widely recognised objective but probably at long last within reach, owes and will continue to owe much to Max Nicholson.

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**Private Lives.** Edited by Jeffery Boswall; introduction by Sir Julian Huxley. B.B.C. Publication, London, 1970. 160 pages; many illustrations in colour and monochrome; maps and sketches. 35s.

*Private Lives* is a profusely illustrated series of studies of thirteen widely ranging species, based on the B.B.C.’s two famous television series ‘Look’ and ‘Private Lives’. The species covered are the Robin, Emperor Penguin, Siamese Flying Fish, Red Fox, Kingfisher, Greater Horseshoe Bat, Atlantic Grey Seal, Great Crested Grebe, Large White Butterfly, Wandering Albatross, Hedgehog, Starling and, rather surprisingly, the New Forest Pony. Despite the great control exercised by man, the 2,500 ponies in the Forest lead an almost wild existence, being divided into highly organised units with fixed ranges and complex social lives. As such they are well worthy of Stephanie Tyler’s fascinating section.

Each study is written by an expert—the birds, for example, are dealt with by David Lack on the Robin, Bernard Stonchouse on the Emperor Penguin, K. E. L. Simmons on the Great Crested Grebe, Lancelot Tickell on the Wandering Albatross and Jeffery Boswall on the Kingfisher and Starling. The authors of all the other species are equally well qualified for their tasks. Thus it follows that this book is no mere ‘pot-boiler’. Each study is well illustrated and easy to read, but at the same time detailed and accurate. The same high standard of photography has gone into the illustrations as into the original television films. As David Lack said of Ron Eastman’s film ‘The

Private Life of the Robin', the photographer has shown certain aspects of bird behaviour more clearly than he was able to observe them in life.

This is a book to be enjoyed by anyone from the interested layman to the professional zoologist. Sir Frank Fraser Darling is quoted at the start as saying that 'The aim of science should certainly be to remove the mystery from natural phenomena, but not to take away wonder, or that quality of nature which allows for the development and play of aesthetic appreciation'. This is an ideal which has certainly been echoed by *Private Lives*.

J. G. HARRISON

## News and comment *Robert Hudson*

**Final Roskill Commission hearings** During June and July the witnesses who submitted evidence for the fifth and final stage of the Roskill Commission's investigations on the siting of London's third airport appeared for examination. The issue of flight safety was taken first: Dr Glen Schaefer, representing those county councils who wished to see the airport sited at Foulness, opened the ball and received twice as much time as anyone else. He pressed for the use of a cheap radar to warn aircraft of bird-strike hazards (which would probably lead to unacceptable interruptions in airline schedules), and resulting discussions indicated that, if Foulness were chosen, expensive measures to reclaim mudflats under approach paths would be needed. A Roskill Commission research team expert, F. W. Colbourne, then stated that the Commission accepted that the bird-strike hazard would be three times greater at Foulness than at any of the possible inland sites. Subsequently, the Chairman of the Commission announced that they did not consider bird-strikes an important factor influencing the site of the airport. This was a disappointment to naturalists, who had hoped that this aspect would carry at least as much weight as conservation issues in the preservation of Foulness from development.

Mr Verrey, representing Buckinghamshire Planning Committee, made an anguished plea for the preservation of the architecturally almost unique Stewkley Church, near Cublington (which is increasingly emerging as the most vulnerable of the inland sites), and suggested that Brent Geese displaced from Foulness could perfectly well move to Langstone Harbour, Hampshire. Then Peter Scott, representing various naturalists' bodies, pointed out that apparently Langstone Harbour already held as many Brent Geese as there were food for, and went on to compare Foulness not so much to a parish church as to a cathedral among nature reserves. He suggested that, whereas Stewkley Church might well be moved, like the temple of Abu Simbel, Foulness was a unique example of a vanishing ecosystem which could never be replaced. He rated Foulness as the most important wintering ground for geese in Britain, more important even than Slimbridge. The Roskill Commission themselves finally brought up the point that in North America it is illegal to construct airports in nature reserves, in part due to the greater public concern there for the protection of such amenities.

Naturalists have now completed their submissions to the Roskill Commission; but other evidence is still being heard, and it may not be until November or December that their recommendation becomes known. Conservation and commercial arguments have been put for and against all four short-listed sites; while an item in the

*Daily Express* for 10th August claimed knowledge that the Roskill Commission will rate noise nuisance to existing communities as more important than commercial advantages. The indications are that the final choice will lie between Foulness and Cublington. Naturalists can but wait and hope.

**Birds as vectors of disease** In recent years the medical profession has shown considerable interest in the probability that migrant birds can carry diseases that affect Man. We have recently obtained a copy of a symposium on the role of migrating birds in the distribution of arboviruses, organised by the Siberian Branch of the U.S.S.R. Academy of Sciences, published in 1969 in Novosibirsk. These proceedings consist of précis of papers read at the symposium, with adequate abstracts in English. It is established that birds carry Protozoa, parasitic worms, Arthropoda and viruses. Following the occurrence of West Nile fever in Astrakhan, strains of this virus were discovered in the blood of Glossy Ibises and in ticks collected from Rooks. Antigens of tick-borne encephalitis and ornithosis were found in Guillemots in Murmansk. Serological surveys undertaken in the Volga delta indicated that birds were the only reservoir of Sindbis virus, with mosquitoes as the main vectors. An important paper by D. Blaskovic and E. Ernek (Czechoslovak Institute of Virology) provided evidence from serologic samplings that birds can carry the viruses for encephalitis, West Nile, Tahyna and sandfly fevers, and equine encephalomyelitis, but only the first-mentioned could be identified in European samples. The role of birds in the ecology of arboviruses depends upon the intensity of viremia and the relations of birds to viruses and vectors. The possibility of migrants introducing arboviruses into distant lands depends upon whether the migrating vectors (for example, ticks) find favourable conditions in the new environment or, if not, whether local vectors can transmit the viruses concerned. The presence of antibodies for arboviruses in migrating birds indicates only a virus-host interaction but does not explain when and where the infection occurred. These are just four examples from the 150 papers presented at this symposium. The major questions now facing medical and ornithological researchers are the extent and importance of disease-carrying by birds. An invited paper by three Americans (J. O. Bond, W. L. Jennings and C. E. Woolfenden) stressed that of 2,000 migrant birds collected in Florida only two yielded isolates, both of eastern encephalitis.

**A new American journal** We have seen the first issue of a new quarterly journal entitled *California Birds*, dated January 1970. The editorial states that this journal will welcome papers on distribution and migration, behaviour, ecology, population studies and field identification problems, with emphasis on articles relating to California. This first number contains 40 pages, the largest item being a 29-page checklist of the birds of California; some short notes include a notable record of a Cape Pigeon off Monterey (this being an Antarctic species of petrel). We hope it is not just wishful thinking on our part in believing that *California Birds* has been modelled to some extent on *British Birds*. The layout, and even the titles, are similar, while the editorial asks for papers of the type that we, too, seek. *California Birds* is setting up a Rare Birds Committee, and states that this will be modelled on the lines of its British and Belgian equivalents. We wish them every success in this break from the 'what's missed's mystery' tradition of local ornithology in the United States. *California Birds* is available, at \$5 per annum, from California Field Ornithologists, 6424 Mount Adelbert Drive, San Diego, California 92111.

**New nature trail in the Cairngorms** The nature trail concept is evidently here to stay. Introduced for the first National Nature Week in 1963, subsequently extended and reaching a new peak of popularity during ECY 70 (thanks largely to the efforts of county naturalists' trusts), there is now scarcely a nature reserve without a



nature trail laid down for the inexperienced but interested visitor. Two such trails were established last year in the vast Cairngorms National Nature Reserve (at Loch-an-Eilean and Craigellachie), and in June 1970 a third was opened in Glenfeshie. A special feature of this last is an observation tower 20 feet high (erected by the Conservation Corps) from which can be obtained spectacular views of the glen and across the Spey valley to the Monadhliath Mountains—a splendid contrast to the overpopulated ski-slopes above Aviemore.

## Recent reports *P. F. Bonham*

### These are largely unchecked reports, not authenticated records

This analysis covers Alpine Swifts, Roller, Hoopoes, Wrynecks and passerines in May, and all dates refer to that month. The weather pattern, with mainly easterly winds, was broadly outlined in the previous summary (*Brit. Birds*, 63: 221-224) which covered the non-passerines. The most remarkable period, at least as far as passerine migrants were concerned, was from about 4th to 13th: an anticyclone persisted over Scandinavia while lows moved north-east from the Iberian region, bringing increasing cloud cover and freshening easterly winds. Large falls of Scandinavian migrants and small influxes of several eastern vagrants affected the east coast from East Anglia north to Shetland, numbers apparently increasing from south to north. The major falls occurred on 7th, 8th, 9th and 10th. A few southern vagrants had arrived during 3rd-5th, but only a handful then appeared until mid-May; peak periods during the second half of the month were 14th-19th and 22nd-25th.

#### SCANDINAVIAN MIGRANTS AND EASTERN RARITIES

A **Wryneck** *Jynx torquilla* in Northumberland on 4th preceded the first major arrival on 7th, when there were nine on Fetlar and twelve on Fair Isle (both Shetland), as well as ones and twos all down the east coast as far south as Minsmere (Suffolk). A smaller arrival on 8th put the number on Fair Isle up to 15 and nine were counted on the Isle of May (Fife). The southernmost report for the whole month came from Pagham (Sussex) on that day. On 9th and 10th, however, no fewer than 35 were present on Fair Isle, and between 9th and 16th small numbers, usually one or two, were reported from over 20 places in ten east coast counties. Many more must have gone unrecorded and the same applies to **Bluethroats** *Luscinia svecica*. None was reported before 7th when two arrived on Fair Isle and several elsewhere in Shetland; then there were nine on Fair Isle on 8th, 31 on 9th and 10th, 17 on 11th and, following a drop, an increase to 14 on 16th. On the Isle of May some 15 were involved in a daily series of observations from 8th to 17th; in the Out Skerries (Shetland) about twelve, and on Fetlar seven or eight, during 7th-13th; and in Northumberland and Co. Durham about twelve between 9th and 16th. Seven or eight were recorded at Spurn (Yorkshire), seven at Donna Nook (Lincolnshire) and five in north Norfolk, but the only report from further south was of an adult male trapped at Sandwich Bay (Kent) on 16th and present also on 17th. Like the vast majority, if not all, of the Bluethroats involved in this movement, this was of the Red-spotted form *L. s. svecica*. Among the more interesting reports of Bluethroats was a large fall in Aberdeenshire about 9th, several males apparently defending temporary territories.

The Wrynecks and Bluethroats on Fair Isle were accompanied by huge numbers of commoner species: for example, 350 **Whinchats** *Saxicola rubetra*, 300 **Redstarts** *Phoenicurus phoenicurus*, 1,000 **Willow Warblers** *Phylloscopus trochilus*, 35 **Pied Flycatchers** *Ficedula hypoleuca* and 350 **Tree Pipits** *Anthus trivialis* on 8th, and 700 Redstarts, 120 Pied Flycatchers and 500 Tree Pipits on 9th. These species were

also much in evidence elsewhere on the east coast, as were **Lesser Whitethroats** *Sylvia curruca*. Returning to Fair Isle, however, five **Red-backed Shrikes** *Lanius collurio* on 8th and 14 on 9th, and no less than ten **Ortolan Buntings** *Emberiza hortulana* there on 10th, make one wonder just how much was missed elsewhere in north-east Scotland during this period. Up to three Red-backed Shrikes were recorded almost daily on the Isle of May during 10th-19th, and other reports of one to three came from many other well-watched east coast localities south to Norfolk, as well as one inland at Colwick (Nottinghamshire) on 12th. Apart from the Ortolans on Fair Isle, and several ones, twos and threes elsewhere in Shetland, others were present singly at Holme (Norfolk) from 4th to 9th, Hartlepool (Co. Durham) on 7th, Spurn from 10th to 14th and Donna Nook on 11th.

Other species probably involved in this movement were **Fieldfares** *Turdus pilaris* and (to a lesser extent) **Redwings** *T. iliacus*, both much in evidence during the first half of May; notable records concerned some 30 Fieldfares on Holy Island (Northumberland) on 9th and 50 on 12th, and a dozen or more in various Kentish localities, the last there on 21st. The last Redwings in the south were on 23rd at Sandwich Bay and on 25th at Minsmere. The peak of **Black Redstarts** *Phoenicurus oclruos* on Fair Isle was eight on 7th, and also prominent in the north-east during this period were **Bramblings** *Fringilla montifringilla*, with several parties of up to 30 in Shetland; the last was reported from Holy Island on 16th. Single **Lapland Buntings** *Calcarius lapponicus* were seen on Bardsey (Caernarvonshire) on 2nd and 3rd, on Whalsay (Shetland) on 5th, and on Foula (also Shetland) and the Farne Islands (Northumberland) on 13th. Lastly, a **Grey Wagtail** *Motacilla cinerea* was an unexpected visitor to Fetlar on 9th, and a vagrant **Hawfinch** *Coccothraustes coccothraustes* was seen at Lerwick (Shetland) during 4th-6th and another—or perhaps the same—on Yell (also Shetland) on 9th; this bird unfortunately died on 10th.

Coming to the rarer species, a **Short-toed Lark** *Calandrella cinerea* appeared on Fair Isle on 10th, being joined by another on 12th; both were last seen on 14th. Two **Shore Larks** *Eremophila alpestris* arrived on Fair Isle on 8th, while two at Minsmere on 2nd, seven at Hauxley (Northumberland) during 3rd-5th, one at Breydon Water (Norfolk) on 14th and two at Donna Nook on 17th were perhaps of more local origin, for 15 of a flock of 25 which had arrived on 12th April still remained in Teesmouth (Co. Durham/Yorkshire) on 2nd May. Singles on Bardsey from 2nd to 6th and again during 13th-16th were rather more unusual. The first **Nightingale** *Luscinia megarhynchos* identified at Teesmouth since 1932 was watched at South Gare (Yorkshire) from 10th to 12th, another seen on 12th and a third in Yorkshire at Spurn on 17th. In Shetland, where it is an even rarer vagrant, one was seen on Fetlar from 9th to 11th and one was trapped on Fair Isle on 17th and 18th. More remarkable were seven **Thrush Nightingales** *L. luscinia*: three trapped on Fair Isle (on 8th, 9th and 11th) and one found dead there (on 14th), and three trapped on the Isle of May (two on 9th and one on 16th). Five of the nine previous British records have been on Fair Isle in May, but none elsewhere in Scotland, and this total of seven so far in 1970 is the highest ever. If seven were identified, many more must surely have gone unnoticed on the east coast of Scotland. Other notable spring rarities with easterly ranges were **Icterine Warblers** *Hippolais icterina* on Skomer (Pembrokeshire) on 5th, at Portland (Dorset) on 25th and 26th, and at Bamburgh (Northumberland) on 26th, a **Barred Warbler** *Sylvia nisoria* singing at Seaton Delaval (Northumberland) on 14th, a **Greenish Warbler** *Phylloscopus trochiloides* at Hartlepool on 16th and, most remarkable of all, a **Dusky Warbler** *P. fuscatus* trapped on the Calf of Man on 14th—the first spring record of this Asiatic leaf-warbler which has been recorded eleven times in autumn.

Three **Red-breasted Flycatchers** *Ficedula parva* appeared at the height of the influx of eastern migrants: at Hauxley on 7th, on the Isle of May on 8th and at Spurn on 10th; a fourth arrived at Dungeness (Kent) on 19th. Another rarity in

Yorkshire on 10th was a **Red-throated Pipit** *Anthus cervinus* at Flamborough. Eight days earlier, an **Olive-backed Pipit** *A. hodgsoni* had been trapped and ringed at Portland: this species breeds no nearer to Britain than central European Russia, and from the date and locality it may perhaps not have been connected with the influx of Scandinavian species. It is only the third record ever, the previous two having been on Fair Isle in October 1964 and September 1965. A male **Black-headed Wagtail** *Motacilla flava feldegg* and up to four **Grey-headed Wagtails** *M. f. thunbergi* were present on Fair Isle during 7th-9th; a Grey-headed was on the Our Skerries on 8th and others appeared at Cresswell (Northumberland) and Spurn on 9th. Finally, a female **Scarlet Rosefinch** *Carpodacus erythrinus* was trapped on Skokholm (Pembrokeshire) on 3rd and an adult male caught and ringed at Bamburgh on 9th, and a male **Black-headed Bunting** *Emberiza melanocephala* appeared at Portland on 24th.

#### SOUTHERN SPECIES

After seven or more **Alpine Swifts** *Apus melba* in April, only three were reported in May: one at Pagham on 12th, one in the Cuckmere valley (also Sussex) on 16th and one at Great Maplestead (Essex) on 25th. **Hoopoes** *Upupa epops*, too, were scarce: apart from one at Kyre Pool (Worcestershire) from 29th April until 4th May, there were two at Bovey Tracey (Devon) on 1st, one at West Huntspill (Somerset) on 3rd, one at Packington (Leicestershire) during the first week of the month, one as far north as Unst (Shetland) on 6th, one each on Skomer and at Donna Nook on 15th and one at Sandwich Bay on 28th. A **Red-rumped Swallow** *Hirundo daurica* appeared on Treseo (Isles of Scilly) on 14th and a **Roller** *Coracias garrulus* at West Caister (Norfolk) on 19th and 20th. The only **Golden Oriole** *Oriolus oriolus* before mid-May was at Holme on 5th, but a number were reported between 17th and 31st—about five at Sandwich Bay and one elsewhere in Kent, and singles in the Isles of Scilly, at Portland, Beachy Head (Sussex), Cley (Norfolk) and Spurn.

**Savi's Warblers** *Locustella luscinioides* were present in Somerset and in Suffolk, as well as at the Kent breeding site, but more unexpected was a record of one heard singing (not seen) on Holy Island on 4th. A **Great Reed Warbler** *Acrocephalus arundinaceus* was seen at Stodmarsh (Kent) on 9th and others were trapped at Beachy Head and on Skokholm on 11th; one was heard and seen in Hampshire on 24th and one trapped in Berkshire on 31st. There were at least three **Subalpine Warblers** *Sylvia cantillans*—on Skomer on 3rd (a male trapped), near Skegness (Lincolnshire) on 11th and at Arbroath (Angus) on 14th—and a **Bonelli's Warbler** *Phylloscopus bonelli* was singing at Minsmere on 6th. Single **Tawny Pipits** *Anthus campestris* appeared at Cley on 8th, at Donna Nook on 24th and on Fair Isle on 25th-26th. There were three or more **Lesser Grey Shrikes** *Lanius minor*, on Whalsay from 17th to 20th, at Shingle Street (Suffolk) on 23rd (trapped) and at Donna Nook on 25th and 26th; and at least four **Woodchat Shrikes** *L. senator*, on Bardsey from 8th to 15th, at Priors Park (Northumberland) on 17th, at Holme from 25th to 27th and on Bressay (Shetland) from 22nd until 28th June. Single **Serins** *Serinus serinus* were reported from Spurn and Portland on 16th and St Catherine's Point (Isle of Wight) on 24th.

#### FINALE

Perhaps a fitting conclusion to this memorable month of May 1970 is provided by two more extreme rarities: a **Baltimore Oriole** *Icterus galbula* at Hook, Haverfordwest (Pembrokeshire) on 6th, and a **Song Sparrow** *Melospiza melodia* caught and ringed on Bardsey on 5th and present at least until 8th. The only two previous records of this North American bunting were on Fair Isle from 27th April to 10th May 1959 and at Spurn on 18th May 1964. While the vast majority of Nearctic warblers and thrushes have occurred here in October, more American 'sparrows' have appeared in May than in any other month (*Brit. Birds*, 63: 145-147).





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After publication, 25 separates are sent free to authors of papers (two authors of one paper receive 15 each and three authors ten each); additional copies, for which a charge is made, can be provided if ordered when the proofs are returned.

Papers should be typewritten with double spacing and wide margins, and on one side of the sheet only. Shorter contributions, if not typed, must be clearly written and well spaced.

Notes should be worded as concisely as possible, and drawn up in the form in which they will be printed, with signature in block capitals and the author's address clearly given in one line at the foot. If more than one note is submitted, each should be on a separate sheet, with signature and address repeated.

Certain conventions of style and layout are essential to preserve the uniformity of any publication. Authors of papers in particular, especially of those containing systematic lists, reference lists, tables, etc., should consult the ones in this issue as a guide to general presentation. English names of species should have capital initials for each word, except after a hyphen (e.g. Willow Warbler, Black-tailed Godwit), but group terms should not (e.g. warblers, godwits). English names are generally those used in *A Field Guide to the Birds of Britain and Europe* (revised edition, 1966). The scientific name of each species should be underlined (but not put in brackets) immediately after the first mention of the English name. Sub-specific names should not be used except where they are relevant to the discussion. It is sometimes more convenient to list scientific names in an appendix. Dates should take the form '1st January 1970' and no other, except in tables where they may be abbreviated to '1st Jan', 'Jan 1st', or even 'Jan 1', whichever most suits the layout of the table concerned. It is particularly requested that authors should pay attention to reference lists, which otherwise cause much unnecessary work. These should take the following form:

BANNERMAN, D. A. 1954. *The Birds of the British Isles*. London. vol. 3: 223-228.

LACK, D. 1960. 'Autumn "drift-migration" on the English east coast'. *Brit. Birds*, 53: 325-352, 379-397.

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Tables should be numbered with arabic numerals, and the title typed above in the style used in this issue. They must either fit into the width of a page, or be designed to fit a whole page lengthways. All tables should be self-explanatory.

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# *British Birds*

Editorial: Studies of seabirds at sea

Report on rare birds in Great Britain in 1969  
(with 1960 and 1968 additions)

F. R. Smith and the Rarities Committee

Studies of less familiar birds 160 Rufous Bush Chat  
(Geoffrey Beven, M.D. England and A. N. H. Peach)

Notes      Reviews      Letters

News and comment      Recent reports

Volume 63    1970    Number 7

5s



# *British Birds*

Editorial Address 10 Merton Road, Bedford Telephone 0234 67558

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# *British Birds*

## Editorial

### Studies of seabirds at sea

Although some valuable observations were made from time to time by early ornithologists, it is surprising, considering Great Britain's historic role as a seafaring nation, that British ornithology has only rather recently turned attention to the systematic study of seabirds at sea. Between the two world wars, ocean transects began to be developed by V. C. Wynne-Edwards, the Nicholsons and others, culminating in M. N. Rankin and E. A. G. Duffey's work in the course of convoy escort duties during 1942-45. W. B. Alexander's *Birds of the Ocean* (1928) provided a basic field guide long before land areas had one. Later, the Royal Naval Bird Watching Society helped to follow up this widening of interest. H. N. Southern's statistical survey of the frequency of bridled Guillemots *Uria aalge* was a pioneer essay in the international biological study of seabirds. Much attention was paid to wrecks of auks, petrels and Shags *Phalacrocorax aristotelis*. Under the influence of James Fisher and others, major censuses of the Gannet *Sula bassana* and Fulmar *Fulmarus glacialis* internationally, and of the Great Black-backed Gull *Larus marinus*, Black-headed Gull *L. ridibundus* and Kittiwake *Rissa tridactyla* nationally, led to research in some depth. Since then, professional ornithologists have worked intensively on the behaviour and population of many species, especially at the Universities of Aberdeen, Durham and Oxford, whilst valuable studies have been made at various bird observatories. Amateur interest has mounted in recent years and the excitement and skills of the art of sea-watching played a great part in the formation by Dr W. R. P. Bourne and other enthusiasts of the Seabird Group in 1966. This group fostered the enquiry into the status of Little Terns *Sterna albifrons* and mounted the massive Operation Seafarer in 1969 and 1970, an ambitious attempt to locate and count all the coastal seabird colonies of Britain and Ireland.



Yet there remains one notable gap in our knowledge of seabirds and their ecology. We are still largely ignorant of how and where most of them live for much of the year when they are away from their breeding colonies. We badly need sustained studies of the distribution of the different populations and age groups of many species at sea, their feeding ecology and the correlation of these with other work on oceanography and marine biology. The offshore waters of Britain and Ireland, which are increasingly under investigation by scientists of other disciplines, offer an ideal area for such research. In view of this, Dr G. M. Dunnet of Aberdeen University, in association with the Seabird Group, applied to the Natural Environment Research Council for support for this work. It is welcome news that a grant has been awarded for a two-year feasibility study of these problems. The senior investigator will be Dr W. R. P. Bourne, who becomes the Director of Research as well as Secretary of the Seabird Group, and there is provision for a research assistant. Dr Dunnet was the first Chairman of the Seabird Group and is a member of its Executive Committee, while Dr Bourne has played an outstanding part in its successful development over the last five years.

The possible benefits of this new research to our knowledge of seabird biology are clearly considerable, even if information is gained on only some of the aspects just mentioned. The value to conservation could be equally great. There is growing disquiet at the possible effects of marine pollution, whether from gross contaminants, such as oil, or from more subtle ones, such as the industrial, agricultural and human wastes now increasingly dumped into the seas of the world. The pressures on auks and seaducks (*Anatidae*) from oil are alarming; the effects of mercury and other metals, polychlorinated biphenyls (PCBs), pesticides and perhaps radioactive wastes and nerve gases cannot be adequately assessed on our present knowledge. It may require years of work, in the field and laboratories, by experts of many disciplines before we can be sure of the precise effects not only on our seabirds but on the teeming life of the oceans which is of more importance than ever at a time of human population explosion. This new research project and the recent decision of the Royal Society for the Protection of Birds, in association with the British Trust for Ornithology and the Seabird Group, to appoint a full-time officer to co-ordinate and extend the surveys of beached birds, are two important steps forward. We must hope that recognition of the essential contribution which ornithologists can make to oceanography will not be much further delayed.

# Report on rare birds in Great Britain in 1969 (with 1960 and 1968 additions)

*F. R. Smith and the Rarities Committee*

*Plates 49-51*

This is the twelfth annual report of the Rarities Committee. The steady increase in the number of records submitted, which had persisted throughout the five years from 1964 to 1968 inclusive, ended abruptly in 1969 with a fall of 20 % from the high total of 510 (of about 113 species) during 1968 to 400 (of about 103 species) in 1969, bringing the situation back almost to that in 1966 (360 records). This decrease was entirely due to the marked reduction in the number of rarities, of American as well as eastern or southern origin, that occurred during the autumn migration, when the number recorded was 30 % less than in 1968. The drop would have been even more apparent if about 60 Richard's Pipits *Anthus novaeseelandiae* had not appeared; although only about half the total of individuals in each of the years 1967 and 1968, the number of this species recorded in 1969 was considerably higher than it had ever been before 1967. The acceptance rate was also down, about 79 % as against 83 % in 1968, but still very much more than the lowest rate of 68 % in 1963. Of the 103 species involved, about 86 were species of which less than ten are recorded each year. The use of the 'Unusual Record' form (*Brit. Birds*, 58: 228-229), which is obtainable free from the address on page 293, is now almost standard practice.

Appendix 1 on pages 292-293 lists the 74 rejections for 1969, while one additional accepted record for 1960 and three for 1968 are given at the end of the main systematic list.

Reference was made in the 1968 report (*Brit. Birds*, 62: 457) to the steps to be taken to bring the committee to the normal number of ten, and to the retirement of one member each year in order of seniority of service. This resulted in the retirement of Professor M. F. M. Meiklejohn who had served as a member since the committee was constituted; we cannot record this without expressing our great appreciation for the highly valued service which he has so good-humouredly given during these ten years. The committee now consists of P. A. D. Hollom (Chairman), F. R. Smith (Hon. Secretary), D. G. Bell, A. R. M. Blake, Peter Davis, R. H. Dennis, G. A. Pyman, R. A. Richardson, Dr J. T. R. Sharrock and R. Wagstaffe. The two new members, R. A. Richardson and Dr J. T. R. Sharrock, were appointed with the support of an overwhelming majority of the county and regional organisations and bird observatories. In addition, M. D. England has been co-opted on

to the committee with special responsibilities in connection with avicultural matters. It has also been agreed that the retirement of one member each year will not take place if the number has been reduced by natural wastage, or if the longest-standing member has served for less than five years in succession.

The comments on the individual species in this report have been prepared by A. R. M. Blake (divers to gulls) and D. G. Bell (terns to buntings) and have again taken into consideration the Irish rarity records in order to complete the picture. It must again be emphasised that the acceptance or rejection of Irish records is the responsibility of the *Irish Bird Report* (and the Northern Ireland Bird Records Committee). All these Irish records have been taken from the *Irish Bird Report* for 1969 (obtainable from David Scott, Granite Cottage, Ulverton Road, Dalkey, Co. Dublin, at five shillings), and we are grateful to its editor, Major R. F. Rutledge, for agreeing to this. The Irish records are given at the beginning of the species comment after the summary (in brackets) of the world breeding range.

Photographs of some of the 1969 rarities are reproduced on plates 49-51. Observers are again urged to forward suitable black-and-white prints to be considered for publication.

A list of the species considered by the Committee was last published with the 1965 report (*Brit. Birds*, 59: 304-305), but revised reprints are obtainable from the address on page 293. It should be noted that records of Arctic Redpolls *Acanthis hornemanni* are now considered only if the bird or birds concerned have been examined in the hand.

The principles and procedure followed in considering records were explained in the 1958 report (*Brit. Birds*, 53: 155-156), and the systematic list is set out in the same way as in the report for 1968 (*Brit. Birds*, 62: 460-489). The following points, some of which were outlined more fully in the 1958 report (*Brit. Birds*, 53: 156-158), should be borne in mind, as they show the basis on which this information has been put together:

(i) The details included for each record are (1) county; (2) locality; (3) number of birds if more than one, and age and sex if known (in the cases of spring and summer records, however, the age is normally given only where the bird concerned was not in adult summer plumage); (4) if trapped or found dead; (5) date(s); and (6) observer or observers up to three in number, in alphabetical order.

(ii) No record which would constitute the first for Britain and Ireland is published by us, even if we consider it acceptable, until it has been passed by the Records Committee of the British Ornithologists' Union.

(iii) In general, the report is confined to records which are regarded as certain, and 'probables' are not included. In the case of the very similar Long-billed and Short-billed Dowitchers *Limnodromus scolopaceus* and *L. griseus*, however, we are continuing to publish indeterminable records and this also applies to observations of such 'difficult' groups as frigate-birds *Fregata spp* and albatrosses *Diomedea spp*.

(iv) The sequence of species is based on the last B.O.U. *Check-List of the Birds of Great Britain and Ireland* (1952) with a few small changes resulting from more

recent research and the many later additions inserted where they seem most appropriate. The scientific nomenclature and specification, on the other hand, follow the more up-to-date work of Dr Charles Vaurie's *The Birds of the Palearctic Fauna* (1959-65) with only minor exceptions. Any sight records of subspecies (including those of birds trapped and released) are normally referred to as 'showing the characters' of the race concerned.

Proofs of this report have again been sent to most of the county editors concerned in England and the regional recorders in Scotland, Wales and Ireland, as this enables the details to be double-checked. This has considerably reduced the number of discrepancies between the relevant reports of this committee and the regional publications and, with improved arrangements for the exchange of information, it is now expected that these will be reduced still further. Observers and recorders are, however, again urged to make sure that the last date on which any bird was seen is supplied.

The procedure outlined in the 1967 report (*Brit. Birds*, 61: 331) for investigating the possibility of escapes has been continued. In addition, M. D. England is now corresponding with continental zoos in order to extend his information network on the foreign escapes that might reach this country. The arrangements with the Wildfowl Trust for exchange of information about escapes are being continued, as an up-to-date assessment of the likelihood of escape is of great assistance. The Committee are most grateful to those concerned and to the many observers and local organisations whose co-operation has made the publication of this report possible. All records should continue to be directed to F. R. Smith, 117 Hill Barton Road, Exeter, Devon EX1 3PP.

## Systematic list of records accepted

### **Black-browed Albatross** *Diomedea melanophris*

**Firth of Forth area:** what is presumed to be the Bass Rock bird recorded in 1967 (*Brit. Birds*, 61: 332) and in 1968 (*Brit. Birds*, 62: 460) was seen six miles off St Abbs Head, Berwickshire, on 28th February (D. McLeod), at Bass Rock, East Lothian, four times from 10th April to about 3rd May (F. Marr) and off Elie Ness, Fife, on 23rd August (Dr I. T. and Mrs M. M. Draper).

**Orkney:** Hoy, 13th August (K. and M. Janich, N. van Swelm).

**Yorkshire:** Hornsea, 24th April (W. F. Curtis).

(Southern Oceans) These might well refer to the same individual, as all were in adult plumage.

### **Wilson's Petrel** *Oceanites oceanicus*

(Southern Oceans) None in Britain, but one off Cape Clear Island, Co. Cork, on 3rd August. This was only the second British and Irish record since 1958 (the other being in 1967).

### **Cory's Shearwater** *Calonectris diomedea*

**Kent:** Dungeness, 13th April (M. A. Hollingworth, P. J. Wycherley).



(Eastern Atlantic and Mediterranean) From Cape Clear Island, Co. Cork, came records totalling 56 individuals, all but five on 23rd and 24th September. Elsewhere in Ireland records totalling 35 individuals ranged from 28th July to 29th September with the peak of 24 off Brandon Point, Co. Kerry, on 23rd September correlating well with observations from Cape Clear Island. The single British record is the lowest return since 1964 when there was none. April records are unusual, this being only the tenth in that month.

### **Purple Heron** *Ardea purpurea*

**Devon:** Slapton Ley, immature, 9th to 27th September (T. F. Edwards, P. W. Ellicott, F. R. Smith *et al.*).

**Essex:** East Warwick Reservoir, Walthamstow, adult, 16th September (B. S. Meadows).

**Hampshire:** Gosport, adult, late September to 15th October (R. Carpenter, D. Price, M. H. Terry *et al.*).

**Kent:** Grove Ferry, adult, 4th May (D. C. H. Worsfold). Sandwich Bay, immature, 31st August to 30th September (M. Davenport, G. Halliwell, D. Hinchon *et al.*).

**Norfolk:** Cley, immature, 6th May (O. and Mrs P. V. Laugharne).

**Shetland:** Fair Isle, adult, trapped, 2nd to 31st May (G. Barnes, R. H. Dennis *et al.*). This bird had been ringed as a nestling on 17th June 1967 at Noorden, Zuid Holland.

**Suffolk:** Minsmere, adult, 19th April and 24th May to 28th June (H. E. Axell, P. J. Makepeace, D. Mower *et al.*).

(South-central Eurasia, north to Holland, and Africa) Eight records in one year is about the average since 1963, before which this species was much scarcer. The hopes entertained in the last report of colonisation of East Anglia were unfulfilled, for only one appeared at Minsmere, even though for a protracted period.

### **Little Egret** *Egretta garzetta*

**Argyll:** Lochdonhead, Mull, four adults, 12th October, three staying until at least 20th November (Colonel M. T. de Klee, G. S. Heddon, J. Wilson *et al.*).

**Devon:** Exe Estuary, 14th to 18th September (B. H. Baker, M. R. Sherman, M. Unwin *et al.*).

**Outer Hebrides:** North Uist, adult, found dead, 29th October (R. MacLennan, Dr A. MacLeod, C. E. Palmar); specimen now in Glasgow Museum.

**Pembrokeshire:** Fishguard Harbour, mid-October, moved to Solva, 29th or 30th; another at Gann Flats and Sandy Haven from 4th October. The Fishguard bird had joined the one at Sandy Haven by 9th November; one remained in the area until mid-December and the other until April 1970 (B. Chambers, K. J. S. Devonald, J. Scammell *et al.*).

**Perthshire:** Dunblane, 26th October (Miss M. Maxwell, Miss D. E. Rowling).

**Yorkshire:** near Patrington, found dead, 23rd December (J. R. Mather, A. W. Wallis *et al.*).

(Southern Eurasia, Africa and Australia) Also one at Rosscarbery estuary, Co. Cork, 18th October to at least 26th December. In marked contradistinction to the previous twelve years, when the majority of

occurrences were in May and June, all the records for 1969 were from September onwards. The overwintering individuals in Pembrokeshire and Co. Cork were not unprecedented, as single birds stayed in both Devon and Cornwall until the end of 1959, and another remained in Anglesey over the winter 1961/62 (*Brit. Birds*, 53: 413; 55: 567). The party which remained so long in Argyll were presumably encouraged by the fine, warm autumn weather. The ten recorded in 1969 bring the total since 1958 to about 80, in contrast to four or five of the Squacco Heron *Ardeola ralloides*, up to 30 years ago much the commoner of the two species.

### Night Heron *Nycticorax nycticorax*

**Dorset:** Charlton Marshall, immature, 23rd November (J. R. and Mrs Clive).

**Kent:** Stodmarsh, 23rd to 30th July (P. J. Mountford); 19th August (W. G. Harvey); 23rd and 24th September (P. J. Mountford). All immatures.

**Sussex:** Rye, immature, 29th September (C. Green, J. M. Harrison, R. E. Scott). (Southern Eurasia, Africa and the Americas) Five records, probably all referring to different individuals, follow the peak of seven in 1968. Escapes from Edinburgh Zoo Park (*Brit. Birds*, 60: 313; 61: 334) and from zoos elsewhere make all records open to suspicion, but occurrences from September onwards could have been associated with the remarkable incursion of Little Egrets.

### Little Bittern *Ixobrychus minutus*

**Kent:** Stodmarsh, ♂, 11th June (P. J. Mountford).

**Sussex:** Chichester gravel pits, ♂, 8th June (A. H. Davis).

(Western Eurasia, Africa and Australia) Two records only for 1969 reverse the upward trend since 1963, and show a sharp reduction from the nine in 1968.

### White Stork *Ciconia ciconia*

**Aberdeenshire:** Milltimber and Balmedie, 15th to 20th April (R. Ewan, A. Robb, J. Robertson *et al.*).

(Central and southern Europe, south-west Asia and north-west Africa) Although the possibility of captive origin cannot be entirely discounted, the dates on which this bird was seen suggest strongly that it was a genuine immigrant. This species has now been recorded in eight of the last ten years.

### Black Stork *Ciconia nigra*

**Norfolk:** Castle Rising, 1st June (D. Bryant).

**Suffolk:** Brandon Heath, 26th May (Mr and Mrs J. A. Bailey).

(Spain, eastern Europe to eastern Asia and southern Africa) Although the two localities are 25 miles apart, the above records probably refer to the same bird. This species is much scarcer than its congener, the White Stork, but it is also a species liable to escape from

wildfowl parks and other collections. A bird reported later in 1969 was traced to such a source. There have been only two previous records since 1958, one in that year and the other in 1959; in fact, the total does not exceed four over the past 25 years.

### **Green-winged Teal** *Anas crecca carolinensis*

Drakes showing the characters of this North American race of the Teal were recorded in March and April as follows:

**Devon:** Burrator Reservoir, 12th to 27th April (L. I. Hamilton, R. F. Moore *et al.*).

**Dorset:** Radipole Lake, Weymouth, 4th to 7th April (T. A. Guyatt, J. A. Lucas, P. E. Standley).

**Yorkshire:** Hornsea, 8th March (W. F. Curtis). Gouthwaite Reservoir, Ramsgill, 29th March (J. R. Mather, M. R. Sanderson, A. F. G. Walker).

(North America) Also males at Lough Carra, Co. Mayo, on 15th and 17th January (trapped); Ballycotton Lake, Co. Cork, from 16th to 26th February; North Bull, Co. Dublin, on 17th March; Blennerville, Co. Kerry, on 18th October, and probably the same bird at Akeragh Lough, Co. Kerry, on 15th November. In addition, males at North Slob, Co. Wexford, on 5th November 1968 and Lough Beg, Co. Derry, on 17th November 1968 were omitted from the 1968 report. This subspecies has been recorded annually since 1958, and these nine records for 1969 bring the total during 1958-69 to 45 records referring to 46 or 47 individuals.

### **Blue-winged Teal** *Anas discors*

(North America) None in Britain, but two in Ireland, one shot near Shannon Airport, Co. Clare, on 7th September, and the other at South Slob Channel, Co. Wexford, on 6th November, making a grand total for Britain and Ireland of 31. The chance of escapes from captivity remains small.

### **American Wigeon** *Anas americana*

**Norfolk:** Cley, immature ♂, 4th November (D. I. M. Wallace).

**Nottinghamshire:** Netherfield, Nottingham, ♀, 27th October to 2nd November (A. and Mrs H. Dobbs, M. C. Powell).

(North America) Also three at Akeragh Lough, Co. Kerry (adult male, 19th January; female, 25th August; male in eclipse, 4th September), and a pair near Ballyferriter, Co. Kerry, on 21st June. In addition, a male at Akeragh Lough from 23rd to 31st March 1968 was omitted from the 1968 report. This duck is bred so frequently in collections that, apart from the two ringing recoveries, in 1966 and 1968, and the invasion of Co. Kerry in October 1968 (*Brit. Birds*, 62: 464), all records must be open to suspicion.

### **Ring-necked Duck** *Aythya collaris*

**Aberdeenshire:** Don Estuary, ♂, 16th February (M. J. H. Cook).

**Oxfordshire:** Dorchester gravel pits, ♂, 9th January to 15th February (D. G. Bell, R. Brownsword, N. Williams *et al.*).

(North America) Increasing numbers of this species have been imported into Britain during the 1960's, and it was recently discovered that not all were permanently pinioned on arrival; these birds are therefore suspected of having originated from collections. The recurrence of the drake in Berkshire/Oxfordshire for the third successive winter is noteworthy, but hardly compares with the extraordinary series of records from Lurgan Park and Lough Neagh in Northern Ireland during 1960-68 (*Brit. Birds*, 62: 465).

### **Ferruginous Duck** *Aythya nyroca*

The committee have removed the Ferruginous Duck from the list of species considered by them, because of the large number of escapes.

### **Surf Scoter** *Melanitta perspicillata*

**Devon:** Kingsbridge Estuary, the immature ♀ recorded in 1968 (*Brit. Birds*, 62: 464) stayed until May.

(North America) Also a first-winter male at Toormore Bay, Co. Cork, on 12th January, only the third in Ireland this century. This species has been recorded in Britain in eleven of the twelve years since 1958, ten of the 19 records coming from Scotland and all but four of the remainder from the south coast of England.

### **King Eider** *Somateria spectabilis*

**Shetland:** Ronas Voe, ♂, 18th April to 7th May (D. Coutts *et al.*) (plate 51a). Scalloway, a different ♂, 24th May to 25th June, and a ♀, 30th May to 9th June (D. Coutts, R. H. Dennis).

(Circumpolar Arctic) Five of the previous seven records since 1958 were from Shetland. Three in one year is unprecedented.

### **Lesser White-fronted Goose** *Anser erythropus*

**Gloucestershire:** Slimbridge, a pair of adults, 24th January to 5th March (M. A. Ogilvie, Mrs P. Scott *et al.*); an adult, paired to a European White-fronted Goose *A. albifrons albifrons*, 28th February and 5th March (P. Scott).

(North-east Europe and Siberia) Also an adult at North Slob, Co. Wexford, on 23rd and 30th March but not thereafter, the first ever recorded in Ireland. Apart from 1965, this species has appeared annually since 1958, but the only regular haunt has been Slimbridge, where it has occurred in ten of the twelve years.

### **Red-breasted Goose** *Branta ruficollis*

**Gloucestershire:** Slimbridge, adult, 19th to 31st January (P. A. Roscoe, L. T. C. Shakespear *et al.*).

**Hampshire:** River Avon near Ringwood, adult, 11th to 19th January (B. S. Duffen, G. R. Hopkins, E. J. Wiseman *et al.*).

(Arctic Siberia) The numbers kept in captivity militate against full



confidence that records of this species relate to truly wild birds. It is curious that in 1967 an immature left Slimbridge on 15th January with a group of White-fronted Geese to reappear three days later on the River Avon in Hampshire (*Brit. Birds*, 61: 338), whilst movement in the reverse direction is indicated by these two records for 1969, which are believed to relate to one individual.

### Red-footed Falcon *Falco vespertinus*

**Derbyshire:** Great Hucklow, ♀, 14th June (R. A. Frost). Egginton, ♂, 21st and 22nd June (A. B. Wassell, C. Whipple *et al.*).

**Dorset:** Portland, immature ♂, 11th to 14th May (F. R. Clifton, J. H. Morgan, G. Walbridge *et al.*).

**Durham:** Saltholme Pool, Teesmouth, adult ♂, 25th October (T. J. Francis, I. Jenkinson, I. Lawson).

**Fife:** Isle of May, adult ♀, trapped, 5th to 12th May (H. Clarke, D. J. Norden, J. Parsons *et al.*).

**Lincolnshire:** Gibraltar Point, immature ♂, 25th July to 5th August (J. F. Cooper, D. Myatt, R. B. Wilkinson *et al.*). Huttoft, immature, 4th October (K. Atkin).

**Norfolk:** King's Lynn, ♂, 7th May (O. Laugharne).

**Shetland:** Hamnavoe, Yell, ♂, 30th May to about 9th June (Mrs R. Leask, R. J. Tulloch) (plate 49a).

**Somerset:** Brean Down, ♂, 8th June (G. L. Webber).

(Eastern Europe and south from Siberia) This was another good year for the species, though not a record and not rivalling 1959 when there was a minor invasion of the New Forest in Hampshire during May (*Brit. Birds*, 53: 417). The predominance of records in May or June is in accord with previous years but occurrences in late July, August and October are very unusual.

### Lesser Kestrel *Falco naumanni*

**Cornwall:** Porthgwarra, ♂, 11th October (J. H. Johns, P. Pearce, N. R. Phillips *et al.*).

(South Europe, west-central and east Asia and north-west Africa) This is only the thirteenth British record and the second accepted since 1926, but perhaps it is significant that the male seen in 1968 (*Brit. Birds*, 62: 466) was found only about 15 miles away. The many imported kestrels are mainly *F. tinnunculus*.

### Crane *Grus grus*

**East Lothian:** Aberlady Bay, 14th August (Mlle R. Magnin).

**Fife:** Leuchars, two, 19th to 30th March (D. W. Oliver, M. Smith, C. R. Wedgwood *et al.*). Peat Inn and Boarhills, three, 22nd March to 1st April (A., D. W. and G. Oliver *et al.*).

**Orkney:** Stronsay, 20th to 29th May (R. Fotheringham). Loch of Swannay, 20th August to about 6th September (E. Balfour, E. J. Williams *et al.*).

**Shetland:** North Unst, 30th May to 4th June (Dr B. Campbell, M. Sinclair, R. J. Tulloch) (plate 51b).

**Sutherland:** Oldshoremore, 20th to 28th June (J. Ballantyne, G. L. Harvey, M. Kerr *et al.*).

**Wiltshire:** Bullen Hill Farm, Trowbridge, 11th June (E. G. Smith).

(Northern and central Eurasia, south to Black Sea area) This species is being imported in increasing numbers from Asia: this eastern race can be distinguished under the best conditions by its paler plumage, but of course this distinction may not be very helpful with flying birds. Thus it is necessary to repeat our injunction of some years ago (*Brit. Birds*, 54: 183) that detailed descriptions must be submitted so that the possibility of some exotic species of crane escaped from captivity can be eliminated (and perhaps also the eastern race of the present species). Numbers fluctuate widely from year to year, 1963 being exceptional.

**Little Crane** *Porzana parva*

**Norfolk:** Cley, immature, 13th to 24th September (R. A. Richardson, H. Shorrocks, A. J. L. Smith *et al.*).

(Central and eastern Europe and western Asia) This is the thirteenth record since 1958, and conforms to the random pattern of dates over this period.

**Little Bustard** *Otis tetrax*

**Essex:** Bridgwick Farm, Dengie, immature or ♀, 28th January (R. M. Larner).

(Southern Europe, western Asia and north-west Africa) This bird was probably associated with the three reported towards the end of 1968 (*Brit. Birds*, 62: 467). Nine have occurred in the last twelve years.

**Sociable Plover** *Vanellus gregarius*

**Orkney:** Carrick, Eday, for about a week around 15th January (J. S. Byres).

(South-east Russia and west-central Asia) For the second successive year this rare plover has appeared, this bird constituting only the eleventh record for Britain, and the first in January.

**Lesser Golden Plover** *Pluvialis dominica*

**Cornwall:** St Just airfield, 9th October (P. R. Colston, G. E. Dunmore, H. P. Medhurst *et al.*).

(Arctic North America and north-east Asia) Also one at Ballyferriter, Co. Kerry, on the unusual date of 25th June, and another near Akeragh Lough, Co. Kerry, from 13th September to the end of the month. The British record was only the fourth since 1958, compared with seven Irish records over the same period.

**Long-billed Dowitcher** *Limnodromus scolopaceus*

**Dunbartonshire:** Loch Lomond, 2nd May (R. J. W. Shaw).

**Norfolk:** Cley and Weybourne, 30th October to 4th November (K. Allsopp, R. S. Brown, A. Greensmith *et al.*).

(North America) These two, plus five other dowitchers not specifically identified (see below), were exceeded only in 1968 when eight dowitchers were recorded. This is strange, considering the few American waders reported in 1969.

**Dowitcher** *Limnodromus scolopaceus* or *L. griseus*

**Argyll:** Loch a' Phuill, Tiree, 6th to 8th October (C. S. Tait).

**Dumfriesshire:** River Nith, 16th August (M. Romer).

**Suffolk:** Benacre Ness, 22nd September (Mr and Mrs B. Spiller).

(North America) Also one in Swords Estuary, Co. Dublin, from 3rd October to 7th December and another on Ballymona Marsh, Co. Cork, from 9th to 15th November. The number of dowitcher records for Britain and Ireland now exceeds 87.

**Stilt Sandpiper** *Micropalama himantopus*

**Suffolk:** Minsmere, 27th to 29th July (H. E. Axell, F. K. Cobb, G. J. Jobson *et al.*).

(North America) This, the eighth record for Britain and Ireland, was during the period from 19th July to 1st September, when all but two of the eight have occurred.

**Great Snipe** *Gallinago media*

**Essex:** East Mersea, 15th February (T. Bispham).

**Lincolnshire/Norfolk:** Wisbech sewage farm, 21st to 23rd August (J. A. W. Moyes).

**Shetland:** Fair Isle, 23rd September (P. C. Agland, R. H. Dennis, N. A. Tuersley *et al.*).

(North-east Europe and north-west Asia) This species has appeared in every year in the last twelve except 1961. Almost certainly it is under-recorded, and a disappointingly high proportion of descriptions submitted are inadequate to establish its identity with certainty, though admittedly it is a difficult species to watch closely or for any length of time. Three records in one year has been exceeded only once since 1958, which period has produced 23 or 24 individuals.

**Spotted Sandpiper** *Tringa macularia*

**Scilly:** St Mary's, 4th to 25th October (M. L. Doble, P. G. Lansdown, P. A. Roscoe *et al.*).

(North America) This species has been recorded in the Isles of Scilly in each of the last five years, but this was a lone record in a lean year for American waders. The total since 1958 is now nine, all in September-October, and the grand total 15.

**Lesser Yellowlegs** *Tringa flavipes*

**Cardiganshire:** Ynys-hir, Dyfi Estuary, 11th to 21st November (W. M. Condry, P. Davis, D. White *et al.*).

**Cornwall:** Stithians Reservoir, 17th to 30th October (Rev. J. E. Beckerlegge, A. H. Glanville, G. E. Mills *et al.*).

**Pembrokeshire:** Skomer Island, 7th August (P. Corkhill).

**Sussex:** Chichester gravel pits, 16th October to 3rd November (A. H. Davis, M. Shrubbs, Miss J. V. Stacey *et al.*).

(North America) Also one at Akeragh Lough, Co. Kerry, from 30th August to 8th September, one at Lissagriffin Lake, Co. Cork, from 26th September until at least 19th October and a third at Tivoli, Cork Harbour, Co. Cork, from 21st until at least 27th December. In addition, one at Kilcoole Marsh, Co. Wicklow, on 6th and 13th October 1968 was omitted from the 1968 report. These seven records for 1969 are the highest in one year, again at variance with the general paucity of American waders during 1969. In all, 43 have been recorded in Britain and Ireland since 1958.

### **Marsh Sandpiper** *Tringa stagnatilis*

**Shetland:** Strand Loch, Gott, 4th to 6th May (D. Coutts, R. Duthie).

(South-east Europe and western and eastern Asia) This, the eighteenth British record, is both the earlier of the two spring records since 1963 and the furthest north of all seven during this period.

### **Terek Sandpiper** *Xenus cinereus*

**Sussex:** Pagham Harbour, 10th May (P. Goriup, Z. and Z. J. Karpowicz).

(North-east Europe and Siberia) All British records except one had been during May-June, so that this, the sixth, conforms with its predecessors. It was also the first accepted since 1963.

### **White-rumped Sandpiper** *Calidris fuscicollis*

**Orkney:** North Ronaldsay, 31st October (D. B. Wooldridge).

**Yorkshire:** Easington, trapped, 9th and 10th September (J. G. Cranfield, M. A. Hollingworth, B. R. Spence *et al.*).

(North America) Also two in the Shannon estuary near the Airport, Co. Clare, on 30th August and one at Rosscarbery inlet, Co. Cork, on 10th September. This American 'peep' has occurred in each of the last twelve years, numbers varying from one to 12 or 13 in a year, and totalling over 50 individuals.

### **Semipalmated Sandpiper** *Calidris pusillus*

**Silly:** Tresco, 19th August (R. F. Coomber, D. B. Hunt, P. Z. Mackenzie).

(North America) Also one at Akeragh Lough, Co. Kerry, on 26th and 27th August. The fact that 14 have been identified since 1964, whereas there were no records during the first six years of these reports, must be due to some extent to the improved ability of observers.

### **Buff-breasted Sandpiper** *Tryngites subruficollis*

**Silly:** St Agnes, 25th to 27th September (D. S. Flumm, S. C. Joyner, P. M. Twist *et al.*).



(North America) After the peak in 1968, when there were 11 records and 17 or more individuals, the solitary occurrence during 1969 again indicates what a poor year it was for American waders. Of particular note is the lack of records from Ireland, where there were at least nine birds in 1968. Apart from 1959, this species has appeared every year since 1958, with a total of about 45 records relating to about 56 individuals.

### **Broad-billed Sandpiper** *Limicola falcinellus*

**Lancashire:** Inner Ribble Marshes, 30th and 31st August (J. E. Ashworth, H. Shorrocks, P. J. Thompson).

(Northern Eurasia) Six of the ten occurrences over the past twelve years have been between late July and the end of August. This is another wader, like the Great Snipe, with a high percentage of rejected records.

### **Black-winged Stilt** *Himantopus himantopus*

**Lincolnshire:** Marston, Grantham, the one recorded on 25th December 1968 (*Brit. Birds*, 62: 470) was last seen on 6th February (D. J. Elmer).

(Southern Europe, Africa, Australasia, and the Americas) This does not affect the previous total since 1958 of 30 records relating to 45 individuals. 1964, 1966 and 1969 are the only three years in the last twelve when no new occurrences have been reported.

### **Wilson's Phalarope** *Phalaropus tricolor*

(North America) None in Britain for the second year in succession (and for only the second year since 1960), but one at Lady's Island Lake, Co. Wexford, on 31st August and another at Kinnegar, Co. Down, on 22nd September, bringing the British and Irish total to 32, all since 1954.

### **Black-winged Pratincole** *Glareola nordmanni*

**Kent:** New Downs, Sandwich Bay, 31st August to 4th September (D. M. Batchelor, M. Davenport, G. Halliwell).

**Northamptonshire:** Pitsford Reservoir, 6th September (R. W. Bullock, P. J. Knight, P. W. Richardson *et al.*).

(Southern Russia and western Asia) These were the eleventh and twelfth pratincoles recorded during the past twelve years; seven have been of this species, all between July and early September.

### **Cream-coloured Courser** *Cursorius cursor*

**Norfolk:** Blakeney, 18th to morning of 29th October; Ormesby East End, afternoon of 29th October until 20th November, when found dead (P. A. Lassey *et al.*); considered to be a bird of the year (plate 49b).

(South-west Asia, and northern and eastern Africa) Although about 27 had been recorded up to 1945, subsequently there were only

five British records, and one in Ireland, before the above occurrence. All the last five British records first appeared between 9th and 23rd October, and the 1969 bird fitted into the same pattern. Probably no rarity has been watched by so many people. No fewer than ten were seen together at Wellerlooi, Limburg, Netherlands, on 12th September, and it seems likely that the Norfolk bird was involved in the same movement.

### **Ivory Gull** *Pagophila eburnea*

**Argyll:** between Ardnamurchan Point and island of Coll, second-winter, about 30th November (L. R. Inkster).

**Shetland:** Ollaberry, immature, 6th November (S. Williamson); Basta Voc, Yell, the same immature, 8th November (R. J. Tulloch).

(Arctic regions) Also one at Ballycotton, Co. Cork, on 16th October, making three records for Britain and Ireland during 1969. There have been only eight records since 1958.

### **Laughing Gull** *Larus atricilla*

**Dorset:** Radipole Lake, Weymouth, first-winter, 17th February to 6th October (F. R. Clifton, Miss M. D. Crosby, D. A. Dolphin *et al.*) (plate 50).

(North America and Caribbean) This was the sixth for Britain and Ireland, but the first to remain for any length of time.

### **Bonaparte's Gull** *Larus philadelphia*

**Cornwall:** St Ives, adult, 1st March to 20th April (E. Griffiths, N. J. and N. R. Phillips *et al.*).

(North America) There were only three occurrences from 1958 to 1966, but seven in the last three years, and in all there are now about 21 records, but only one from Ireland.

### **Ross's Gull** *Rhodostethia rosea*

**Shetland:** between Whalsay and Fetlar, second-winter, 22nd October (J. A., L. and P. S. Irvine *et al.*).

(North-east Siberia) This was the fifth record since 1958 (including one off Cape Clear, Co. Cork, on 3rd September 1967) and the seventh ever.

### **White-winged Black Tern** *Chlidonias leucopterus*

**Dorset:** Radipole Lake, Weymouth, immature, 5th August (C. E. Richards).

**Durham:** Washington, immature, 12th August (Dr B. Marshall, B. Unwin).

**East Lothian:** North Berwick golf course, 27th June (R. M. Curber).

**Kent:** Dungeness, immature, 14th to 29th August (J. R. H. Clements, P. J. Grant, R. E. Scott *et al.*).

**Lancashire:** Leighton Moss, immature, 24th August (D. J. Hindle, D. Power, H. Shorrocks). Inner Ribblesdale Marshes, immature, 30th August to 3rd September (H. Shorrocks, P. J. Thompson).

**Lincolnshire:** Donna Nook, adult, 5th August (S. Lorand).

**Lincolnshire/Norfolk:** Wisbech sewage farm, immature, 14th to 27th August (R. Lumb, J. A. W. Moyes, C. Winn *et al.*).

**Norfolk:** Cley, adult, 10th to 17th August (A. J. L. Smith, D. Willis *et al.*).

**Northumberland:** Grindon Lough, 7th June (D. G. Bell, J. and R. McCutcheon *et al.*). Holywell Ponds, immature, 9th to 12th August (Dr J. D. Parrack).

**Somerset:** Barrow Gurney Reservoir, immature, 7th September (P. J. Chadwick).

**Suffolk:** Minsmere, immature, 5th and 12th August (H. E. Axell, F. K. Cobb, D. Mower *et al.*).

(South-east Europe and west and east Asia) Also an adult at Blennerville, Co. Kerry, on 13th and 14th September and an immature at Brandon Bay, Co. Kerry, on 20th September. This total of 15 records, although lower than the peak of 26 in 1968, is the fourth highest since 1958 and reflects the upward trend. Apart from the two June occurrences in the north-east (possibly the same individual, as northerly records of this species are rare and both referred to the striking summer plumage), all were in autumn between 5th August and 20th September, and all except two were immatures. About 75 % of all records since 1958 have occurred during the autumn migration.

### **Whiskered Tern *Chlidonias hybrida***

**Hampshire:** Newtown Estuary, Isle of Wight, adult, 26th September (B. J. Angell, B. Holden).

**Northumberland:** South Linton Pond, immature, 4th and 5th September (L. G. Macfarlane, Dr B. Marshall, Dr J. D. Parrack *et al.*).

**Staffordshire:** Belvide Reservoir, 27th April (A. R. M. Blake).

(South Eurasia, north-west, east and south Africa, and Australia) This total of three in a year has been equalled only twice before and includes only the second April record since these Reports began in 1958. In this period there have been 17 in Britain and two in Ireland.

### **Gull-billed Tern *Gelochelidon nilotica***

**Lincolnshire:** Donna Nook, adult, 4th August (S. Lorand).

**Stirlingshire:** Skinflats, Grangemouth, two adults, 6th September (C. S. Tait).

(Denmark, south Europe, south Asia, north-west Africa, Australia and the Americas) Also one at Ballyconneely, Co. Galway, on 1st July. Although this is only the second Irish record (the first being in 1957), this is the smallest yearly total recorded in Britain since 1958; during these twelve years an annual average of seven or eight has become established.

### **Caspian Tern *Hydroprogne tschegrava***

**Kent:** Sandwich Bay, 27th July (R. H. Lawrence).

**Norfolk:** Cley, adult, 6th August (T. J. Francis, I. Jenkinson, I. Lawson *et al.*). Weybourne, adult, 11th September (H. M. Russell, B. S. Turner).

**Sussex:** Worthing, 30th April (K. L. Walker).

(Baltic, south-east Europe, south-west and south-east Asia, Africa,

Australia and North America) Four records in 1969 continue the decline from the peak of eleven in 1966 to seven in 1967 and six in 1968. The Sussex occurrence was, however, the first April one in the period 1958-69, during which all the other records (44, involving 47 individuals) have been between May and September.

### **Brünnich's Guillemot** *Uria lomvia*

Argyll: Loch Caolisport, Knapdale, found dead, 11th October (R. K. Macgregor).

(Circumpolar Arctic) This is only the sixth accepted record for the British Isles, the last being in 1968, also found dead.

### **Pallas's Sandgrouse** *Syrhaptes paradoxus*

Northumberland: Seahouses, ♂, shot, 5th September (L. Currie); specimen now in the Hancock Museum, Newcastle-upon-Tyne. Elwick, 6th September (L. Currie).

Shetland: Foula, 26th to 31st May (Mrs M. Gear, J. G. Holbourn *et al.*).

(South-east Russia and west central Asia) Since the last invasion of this highly irregularly irruptive species in May 1908, the only British record was of one in Kent in December 1964—though two sandgrouse near Wexford Harbour in May 1954 were either Pallas's or Black-bellied Sandgrouse *Pterocles orientalis*. Against all expectation one or two invasions (albeit on a small scale) occurred in 1969, producing not only the May bird on Foula but also four (possibly six) in Finland and one in the Netherlands in the same month and two in the Netherlands in June. Then followed the Northumberland birds in September, when one was also found dead on Texel, followed by five in the Southern Netherlands in December.

### **Yellow-billed Cuckoo** *Coccyzus americanus*

(North America) A bird which had been dead for about four to seven days was picked up on Cape Clear Island, Co. Cork, on 13th October, the fourth or fifth record for Ireland. Only two have been recorded in Britain in the period 1958-69: in Sussex in 1960 and on Scilly in 1965.

### **Scops Owl** *Otus scops*

Scilly: St Agnes, 29th September (Mr and Mrs J. A. Bailey).

(South Europe, Russia, west Asia and north-west Africa) The above record is the fourth in the last twelve years. This migratory owl remains a rare vagrant to Britain and Ireland, though the more sedentary eastern races are imported in large numbers and escapes, therefore, are always possible.

### **Snowy Owl** *Nyctea scandiaca*

Shetland: Aywick, 15th February (D. Thompson). Ronas Hill, 27th March (per A. Nicholson); ♂ and immature ♀, 21st June (D. Coutts). Unst, ♂, 20th to 29th April; 30th May; two, 3rd and 5th May (M. Sinclair). Haroldswick, Unst, 11th May



(M. Sinclair). Fair Isle, ♂, 20th May (G. J. and S. Barnes); ♀, 1st June (K. de Groot, R. H. Dennis *et al.*). Fetlar, a pair again bred, the adults and one young being still there at the end of the year together with three others (R. J. Tulloch).

(Circumpolar Arctic) 1969 was the third year in succession that a pair bred on Fetlar.

### **Alpine Swift** *Apus melba*

**Cornwall:** Marazion Marsh, 18th October (D. J. Britton, N. R. Phillips).

**Devon:** Lundy, 15th and 16th May (S. R. Hatch, Rev. J. Tiller).

**Dorset:** Portland Bill, 18th September (F. R. Clifton, M. D. Hutchinson, D. E. Paull).

**Hampshire:** near The Needles, Isle of Wight, 18th May (S. Linington).

**Kent:** Dover, 15th to 18th March, when it died (Major O. H. Davies, Dr J. M. Harrison, R. E. Scott *et al.*).

**Lincolnshire:** Tetney, Grimsby, 24th October (R. Clifford, R. Dawson).

**Scilly:** St Agnes, found dead at Lighthouse, 24th September (per Miss H. M. Quick). This bird had been ringed as a nestling at Solothurn, Switzerland, on 26th July 1969.

**Somerset:** Weston-super-Mare, 20th September (J. V. Beer, K. J. Grearson, D. Watson *et al.*).

**Sussex:** Beachy Head, 27th September (J. Bodle, T. Dale *et al.*).

(South Eurasia, north-west and east Africa) This total of nine is above the annual average since 1958, and the Lincolnshire record is the latest during these twelve years. The Kent record is exceptionally early but not unprecedented, there being two previous British March records (including one in Devon on 11th March 1930) and one Irish.

### **Bee-eater** *Merops apiaster*

**Kent:** Sandwich Bay, 25th May (G. Halliwell).

**Orkney:** Sanday, found dead, 25th May (W. Groundwater per I. H. J. Lyster and the Royal Scottish Museum). Westray, 29th and 30th May (Mrs M. A. Scott).

**Shetland:** Fair Isle, three, 7th to 9th July (G. J. Barnes, R. H. Dennis *et al.*). Stromfirth, Weisdale, probably the same three, 9th to 12th July (D. Coutts).

**Sussex:** Beachy Head, 5th June (Mrs M. E. Charlwood).

(South Europe, south-west Asia and north-west Africa) These six records involving seven birds are above average for the last twelve years. The predominance of records from Scotland is the reverse of the usual situation for a bird which rarely strays so far north.

### **Roller** *Coracias garrulus*

**Aberdeenshire:** Peterhead, 28th June to 8th July (Dr C. J. and Mrs F. C. Pearce, D. E. B. Lloyd *et al.*).

**Caithness:** Skail Forest, 19th to 24th June (J. Gunn, Dr P. McMorran, D. M. Stark *et al.*).

**Kent:** Canterbury, 8th and 9th June (D. Spinner, R. G. Williams).

**Kirkcudbrightshire:** New Galloway, 10th to 14th August (Miss A. M. Chorley, Miss J. Clifford).

(South and east Europe, west Asia and north-west Africa) Four records have been equalled only once (1962) and surpassed only once (five in 1968), at least during the last twelve years. It is interesting to note that each bird stayed in the same locality for at least two days—a feature of about two-thirds of the Roller records since 1958.

### **Short-toed Lark** *Calandrella cinerea*

**Scilly:** St Mary's, two, 4th and 5th October, one remaining until 11th (D. I. M. Wallace, L. P. Williams *et al.*).

**Shetland:** Fair Isle, 3rd June (G. J. Barnes); 30th September (G. J. Barnes). Whalsay, 14th and 18th October (J. H. Simpson).

**Suffolk:** Minsmere, 10th to 24th May (H. E. Axell, D. J. Holman, T. P. Inskipp *et al.*); 5th September (H. E. Axell, F. K. and Mrs A. Cobb *et al.*).

**Yorkshire:** Spurn, 13th to 18th September (T. R. Bradbury, J. Cudworth, G. E. Dobbs *et al.*). Redcar, 14th to 16th September (T. J. Francis, S. C. and W. Norman *et al.*).

(South Eurasia and north and east Africa) Eight records, of which six were in autumn, follow the pattern in 1967 and 1968 of an increase in autumn occurrences. Although nine individuals are not as many as in 1968 (15-17) or 1967 (12), this is still well above the annual average.

### **Red-rumped Swallow** *Hirundo daurica*

**Essex:** Great Totham gravel pit, Maldon, 26th April (C. A. Ball, W. E. Barrett).

**Yorkshire:** Beverley and Figham, River Hull, 16th to 20th April (H. T. James, F. M. Nethercoat, T. W. Upton *et al.*).

(South and east Eurasia and Africa) Spring occurrences in the British Isles are typical.

### **Nutcracker** *Nucifraga caryocatactes*

(Eurasia from Scandinavia and the Alps to Kamchatka and China) As stated in the 1968 report (*Brit. Birds*, 62: 476), a full list of the Nutcrackers involved in the 1968 influx and the 1969 overspill is being prepared separately as part of an analysis by J. N. Hollyer, to be published shortly. Any records for 1970 must be submitted for consideration by the committee.

### **Wallcreeper** *Tichodroma muraria*

**Dorset:** Worth Matravers, ♂, 19th November to April 1970 (S. P. W. Corbett, J. R. Cox, M. Tuck *et al.*).

(Central and southern Eurasia, discontinuously from the Pyrenees to China) This remarkable occurrence of a mountain bird which is normally sedentary (though moving to lower altitudes in winter) is only the seventh ever recorded in the British Isles—the last being in Sussex, in 1938—and the fourth this century. Its length of stay is particularly noteworthy, but perhaps not surprising in a basically non-migratory species.

**Rock Thrush** *Monticola saxatilis*

**Norfolk:** Salthouse, ♂, 9th May (Mr and Mrs A. G. Kneen).

(Central and southern Eurasia) This is the ninth British record of this summer visitor, and the third in the last twelve years, the last being in 1962 and 1963. It has usually occurred in spring.

**Black-eared Wheatear** *Oenanthe hispanica*

**Caithness:** Clyth, Lybster, ♂, 2nd to 4th and 15th July (R. W. J. Smith, D. M. Stark, M. Williams *et al.*).

(South Europe, south-west Asia and north-west Africa) There are now 20 records (including one Irish) of this bird whose visits here are highly sporadic. This is the first July record.

**River Warbler** *Locustella fluviatilis*

**Caernarvonshire:** Bardsey, dying at Lighthouse, 17th September (G. H. Evans).

**Shetland:** Fair Isle, trapped, 16th September (K. Armstrong, R. H. Dennis *et al.*).

(Central and east Europe and west central Asia) This species occurred for the first time in the British Isles on Fair Isle in 1961. That it should next occur twice in two days in 1969 is remarkable, but the contiguity of dates and the distance apart of Shetland and Caernarvonshire suggest that there may even have been a small influx at this time.

**Savi's Warbler** *Locustella luscinioides*

**Kent:** Stour Valley, three, perhaps five, ♂♂, 19th April to 14th July (M. Davenport, P. J. Mountford *et al.*). A second locality, ♂ all May (M. Davenport).

**Lincolnshire:** Theddlethorpe, adult, 3rd August (A. C. Blackburn, E. J. Mackrill). Bardney, adult, 22nd August (R. Hansen).

**Norfolk:** Cley, 15th May to 11th July (O. and Mrs P. V. Laugharne).

**Suffolk:** Walberswick, two, perhaps three, 4th May to 19th July (G. L. Clarke, G. J. Jobson, D. J. Pearson).

**Yorkshire:** Knaresborough, 14th and 15th May (D. N. Brown, R. Evison, J. R. Mather *et al.*).

(Europe, west and central Asia and north-west Africa) The fairly wide spread of records—this year including one in Yorkshire—again encourages hopes that this warbler will re-establish itself in other areas as a British nesting species. It must be remembered, however, that the spring occurrences largely coincided with those of other European rarities which certainly showed no inclination to breed here.

**Great Reed Warbler** *Acrocephalus arundinaceus*

**Devon:** Thurlestone, 12th October (R. Burrige).

**Dorset:** Studland, 6th to 26th June (H. G. Alexander, J. R. Cox, P. G. Hawkins *et al.*).

**Kent:** Stodmarsh, 24th May (M. L. Doble, P. A. Roscoe). Dungeness, trapped, 31st May and 1st June (J. R. H. Clements, P. J. Grant, R. E. Scott *et al.*).

Lincolnshire: Huttoft, trapped, 3rd May (K. Atkin, J. F. Cooper).

Somerset: trapped, 25th August (locality and name of observer withheld at his request).

Sussex: Glynne Gap, St Leonards-on-Sea, trapped, 11th May (R. H. Charlwood, P. Clement, S. Richardson *et al.*). Chichester gravel pits, 4th June (M. Shrubbs, Miss J. V. Stacey).

(Europe and west central Asia) In contrast to 1968, the first year with no records since these Rarities Reports began in 1958, 1969 produced eight records—the largest annual total in this period. Sight records do not normally exclude the Clamorous Reed Warbler *A. stentoreus* (especially the less rufous race *brunnescens*) which, however, is unlikely to occur in Europe.

### Blyth's Reed Warbler *Acrocephalus dumetorum*

(North-east Europe, central and south Asia) None in Britain, but one on Cape Clear Island, Co. Cork, from 13th to 19th October. This was the first Irish record (and the seventh for Britain and Ireland as a whole) of this little-known warbler which breeds as near as southern Finland. A note on its identification, based on the above record, was published earlier in this volume (*Brit. Birds*, 63: 214-216). The last British record was in 1928.

### Aquatic Warbler *Acrocephalus paludicola*

Devon: Thurlestone, two, trapped, 9th August (R. Burridge, M. Tucker).

Dorset: Portland Bill, trapped, 14th September (F. R. Clifton *et al.*).

Hampshire: Stanpit Marsh, trapped, 6th August (C. I. Husband); 13th September (D. J. and K. M. Godfrey). Keyhaven, 27th August (E. J. Wiseman).

Norfolk: Blakeney Point, 21st September (K. Atkin, J. F. Cooper, E. J. Mackrill).

Shetland: Fair Isle, five, including four trapped, between 14th and 17th August (R. H. Dennis, J. A. Ginnever, Dr P. J. B. Slater *et al.*). Out Skerries, 17th August (A. R. Mead, R. J. Tulloch).

Somerset: trapped, 14th August (locality and name of observer withheld at his request). Blagdon Reservoir, trapped, 24th August (P. J. Chadwick).

Sussex: Litlington, trapped, 7th to 9th August (R. H. Charlwood, M. Rogers, P. J. Wilson *et al.*). Chichester gravel pits, trapped, 9th August (Dr A. B. Watson); trapped, 6th September (Dr A. B. Watson).

(East Europe and west Asia) These 18 individuals of this annual migrant to Britain all fell in the usual peak months August-September, and just equalled the previous maximum recorded in a year (1959).

### Subalpine Warbler *Sylvia cantillans*

Shetland: Fair Isle, ♀, 13th June (R. H. Dennis).

(South-west Europe, Middle East and north-west Africa) The occurrences in the British Isles of this migratory Mediterranean scrub warbler are usually in spring, when it overshoots its breeding grounds on the northward migration.



**Spectacled Warbler** *Sylvia conspicillata*

**Cornwall:** Porthgwarra, ♂, 17th October (P. W. Burness, A. P. Goddard, G. J. Jobson).

(South-west Europe, Middle East, north Africa, Madeira, Canary and Cape Verde Islands) It is interesting that this, the scarcest and most local of the Mediterranean scrub warblers, occurred for the first time in Britain in 1968 and then again in 1969—both years in October.

**Greenish Warbler** *Phylloscopus trochiloides*

**Shetland:** Fair Isle, immature, trapped, 29th August (R. H. Dennis, A. Rackham *et al.*).

(Eurasia from south Finland and north Germany to Manchuria and central China) Also one on Cape Clear Island, Co. Cork, on 4th and 5th October. Although this species typically occurs here in autumn, most years since 1958 have managed to produce more than this: it has been extending its breeding range considerably in the last two or three decades.

**Arctic Warbler** *Phylloscopus borealis*

**Shetland:** Bruray, Out Skerries, 19th to 26th September (R. W. Byrne, I. S. Robertson). Fair Isle, trapped, 21st September (R. H. Dennis, J. O'Sullivan, Miss S. West *et al.*).

**Yorkshire:** Hornsea, trapped, 12th and 14th October (G. Bird, C. E. King, J. E. Walker).

(North-east Europe, north Asia and Alaska) This species has never been recorded in Britain and Ireland in spring, though it has occurred annually since 1958 (except in 1963) at an average rate of about three per year.

**Collared Flycatcher** *Ficedula albicollis*

**Norfolk:** Holme, ♂, trapped, 4th to 6th May (P. R. Clarke, C. A. E. Kirtland, J. Reynolds *et al.*).

(East Europe, south-west Asia) This is the sixth British record, the last three having been in three consecutive years 1962-64. All except one have been in spring, but it is not so easily identified in autumn.

**Richard's Pipit** *Anthus novaeseelandiae*

**Anglesey:** Malltraeth, 5th November (J. and Mrs J. Ryder, J. P. Wilkinson).

**Caernarvonshire:** Portmadoc, 12th October (L. A. Brown, R. E. J. Gough, P. Hope Jones).

**Cardiganshire:** Tregaron, 17th October (P. Davis).

**Cornwall:** Porthgwarra and St Levan, 21st September, two 27th, one 28th (M. L. Doble, P. G. Lansdown, P. Roscoe *et al.*); 4th, 5th and 9th October (N. R. Phillips); two, 10th (P. R. Colston, G. E. Dunmore, H. P. Medhurst *et al.*); 1st and 2nd November (N. R. Phillips). St Ives, 4th October (N. J. Phillips). St Just, 9th October, two 10th (P. R. Colston, G. E. Dunmore, H. P. Medhurst *et al.*). Lizard, three, 15th October (Rev. J. E. Beckerlegge); one, 17th (Rev. J. E. Beckerlegge, G. E. Mills).

**Devon:** Weston Cliffs, 20th October (F. R. Smith).

**Dorset:** Portland Bill, 12th to 17th September (J. E. D. Furse, Professor M. F. M. Meiklejohn, L. J. Reed *et al.*).

**Fife:** Isle of May, 18th to 26th October (Dr B. Marshall, B. and J. Unwin *et al.*).

**Kent:** Foreness Point, Margate, 18th and 19th September (G. Felstead, J. N. Hollyer).

**Lincolnshire:** Gibraltar Point, 26th October (K. Atkin). Donna Nook, 10th, 12th and 16th to 22nd November, when another appeared and one was trapped (G. K. Brown, S. Lorand, K. Robinson *et al.*).

**Norfolk:** Weybourne, 20th and 27th September (G. E. Duimore); 23rd October (B. W. Jarvis). Salthouse, 18th October (T. R. Cleaves, S. J. Moon, P. A. Roscoe); 19th (K. and Mrs E. M. P. Allsopp, J. E. D. Furse); 25th (R. H. Charlwood, A. Kitson). Morston, 18th to 20th October (A. R. M. Blake, P. A. Lassey *et al.*). Holme, 20th October (H. Ramsay). Mundesley, 23rd October (A. Aitken). Cley, 4th November (D. I. M. Wallace).

**Orkney:** North Ronaldsay, 1st to 3rd November (Dr R. Ditchburn, E. J. Wiseman, D. B. Wooldridge).

**Scilly:** Bryher, 20th April (D. B. Hunt); two, 1st October (P. Messent, A. J. L. Smith *et al.*). St Agnes, 14th September (S. C. Joyner, N. R. Rogers, M. D. Welshman *et al.*); two, 18th (S. C. Joyner, P. F. and M. S. Twist); two, perhaps three, 28th (P. J. Grant, E. Griffiths *et al.*); 29th (D. S. Flumm, H. P. K. Robinson, D. I. M. Wallace *et al.*); 22nd October (D. S. Flumm). St Mary's, up to four, 20th September to 6th October (J. E. Bailey, P. J. Grant, H. P. K. Robinson *et al.*); 23rd October and 17th November (D. B. Hunt). Tresco, 2nd October (H. P. K. Robinson); 10th (P. J. Grant, P. R. Holness, N. J. Westwood *et al.*). St Martin's, 23rd October (A. G. Parsons).

**Shetland:** Fair Isle, 19th August (G. J. Barnes); 15th to 25th October (G. J. Barnes).

**Somerset:** Clevedon, 12th and 13th January (K. L. Fox, R. J. Senior, K. E. Vinicombe *et al.*).

**Suffolk:** Minsmere, 5th to 17th October (H. E. Axell, R. Bream, D. A. Riley *et al.*).

**Sussex:** Pebsham, Bexhill, 20th October (S. Richardson).

**Yorkshire:** Spurn, five, 13th September (J. Cudworth); four, 15th (G. R. Edwards, J. Leece, B. R. Spence *et al.*); singles, 17th, 18th September, 6th, 19th and 20th October (T. R. Bradbury, J. Cudworth, B. R. Spence *et al.*).

(Central and east Asia, south-east Asia, Africa and Australasia) For the fourth year in succession there was an influx of this species comprising over 50 individuals. This total was, however, noticeably lower than in 1967 (at least 120) and 1968 (130-150) and more comparable with the number recorded in the first invasion year, 1966 (32-38). It will be interesting to see whether this portends a return to the situation during 1958-65, when the average annual total was about nine. Many observers are already so familiar with this species that it is easy to forget that there were only four British records in 1965 (only four years ago). It remains rare in winter and spring (one each in 1969) and at all seasons in Ireland (none in 1969), and apart from a very early autumn migrant on Fair Isle on 19th August, all other 1969 records were between 12th September and 20th November, the peak period being from 9th to 23rd October.

**Tawny Pipit** *Anthus campestris*

**Cornwall:** St Just, two, 9th October (P. R. Colston, G. E. Dunmore *et al.*). Porth-gwarra, 12th October (P. G. Lansdown).

**Durham:** Hartlepool, 12th October (G. Icton, R. T. McAndrew, P. J. Stead *et al.*).

**Essex:** Holliwell Point, Crouch estuary, 7th November (R. Glover).

**Hampshire:** Silchester Common, immature, 13th to 19th September (T. A. Guyatt, J. A. Lucas, P. Standley *et al.*).

**Kent:** Cliffe Marshes, 30th May (C. F. Turner). Dungeness, 13th September (J. R. H. Clements, B. R. Coates, A. J. Greenland *et al.*); adult, 20th and 21st (J. R. H. Clements, B. W. Finch, P. J. Grant *et al.*).

**Middlesex:** Hayes, adult, 29th September (J. A. and Mrs Hazell).

**Norfolk:** Winterton, 18th May (P. R. Allard, G. J. Jobson). Salthouse, 19th October (K. and Mrs E. M. P. Allsopp, J. E. D. Furse).

**Scilly:** St Agnes, 17th September, three 18th (S. C. Joyner, M. S. and P. F. Twist); 21st October (R. S. Brown, D. S. Flumm, A. Greensmith).

**Sussex:** Beachy Head, 24th May (B. W. Finch, S. D. Housden); trapped, 8th September, two 10th, singles 14th to 19th (R. H. and Mrs M. E. Charlwood, B. E. Cooper *et al.*). St Leonards-on-Sea, two adults, one trapped, 7th September (R. H. Charlwood, S. Richardson).

(Europe, south Asia and north-west Africa) Also an immature on Cape Clear Island, Co. Cork, on 5th October and an adult there on 10th October. These 24 (approximately) almost match the record total of 25 in 1968. Compared with those of Richard's Pipits, 1969 records were typical in being more numerous in spring, having an earlier peak in the autumn, and being concentrated in the south.

**Red-throated Pipit** *Anthus cervinus*

**Devon:** Lundy, 17th May (Rev. J. Tiller).

**Scilly:** Gugh, 29th September (D. L. Clugston).

**Shetland:** Fair Isle, 22nd September (G. J. Barnes).

**Sussex:** Beachy Head, 19th and 20th October (J. F. Cooper, B. A. E. Marr, A. Quinn *et al.*).

(Arctic Eurasia) May, September and October are the peak months for the almost annual occurrence in the British Isles of this scarce, highly migratory summer visitor which breeds as near as Norway.

**Citrine Wagtail** *Motacilla citreola*

**Shetland:** Fair Isle, immature, 14th to 16th September (G. J. Barnes, R. H. Dennis *et al.*).

(East Russia and west-central Asia from Siberia to Tibet) Though not quite an annual vagrant, this is the thirteenth British record (fourteenth bird), all in autumn. The first six were also from Fair Isle.

**Black-headed Wagtail** *Motacilla flava feldegg*

**Shetland:** Out Skerries, ♂ showing the characters of this subspecies, 8th to 11th May (I. S. Robertson).

(Balkans and Asia Minor) This distinctive race of the Yellow





PLATE 44. Rufous Bush Chats *Cercotrichas galbanus* at nest, Portugal, June 1968. This nest was five feet up in the main fork of an olive tree and rather exposed. Note the species' distinctive shape with its long stout bill, long pale legs, and long tail frequently cocked (pages 294-299) (photos: A. N. H. Peach, M. D. England).







PLATE 45. The same nest as in plate 44. Note the bird's conspicuous face pattern: a dark eye-stripe contrasts with a creamy supercilium and a whitish patch beneath. This subspecies is rufous-chestnut above and sandy-white below; the tail markings are not prominent when the feathers are closed like this (*photos: J. N. H. Peach*)





PLATE 46. Another nest two feet up in vines, but still on a firm base and better concealed, Portugal, June 1968. It is untidily built of grasses and other stems and lined with wool, hair and vegetable down. The eggs, usually four, are white to greenish with amber markings (page 298) (photos: A. N. H. Pearl, M. D. England)







PLATES 47 and 48. Rufous Bush Chat *Cercotrichas galactotes* displaying in aviary, Norfolk, July 1970. In an aggressive posture the male faces his rival and stands very upright, spreading his wings so that the under-surfaces face forwards and fanning his tail and moving it up and down to show the white tips and subterminal black bands to full advantage. Display to the female is very similar except that he keeps his bill closed and turns sideways or faces away from her (the photo at top right was taken over the female's head) (pages 296-297) (photos: M. D. England)







PLATE 49. First-summer male Red-footed Falcon *Falco respatinus*, Shetland, June 1969; a worm is unusual food for this insectivorous bird (page 274) (photo: R. J. Tulloch). Below, young Cream-coloured Courser *Cursorius cursor*, Norfolk, October-November 1969; the long legs are hidden (page 278) (photo: R. P. Bagnall-Oakeley)





PLATE 50. First-year Laughing Gull *Larus atricilla*, Dorset, April 1969 (present February-October). Note the long black bill, white eye-rims, dark primaries and breast, blackish marks on the axillaries, white rear wing-edges, white rump, and grey-sided tail with its broad black end (page 279) (photos: J. B. and A. Bottomley)







PLATE 51. Above, male King Eider *Somateria spectabilis* with duck Eider, Shetland, April-May 1969 (page 273) (photo: Dennis Coats); and Crane *Grus grus*, Shetland, May-June 1969 (page 274) (photo: R. J. Tulloch). Below, male Scarlet Rosefinch *Carpodacus erythrinus*, Calf of Man, 1st June 1969 (page 290) (photo: Malcolm Wright)



Wagtail has occurred three times before in the last twelve years—in October 1958, May 1960 and June 1964.

**Lesser Grey Shrike** *Lanius minor*

**Argyll:** Kentra Moss, Acharacle, 1st June (Mr and Mrs R. E. Dix).

**Norfolk:** Burnham Norton, 25th May (J. R. Collman, P. A. Dukes, T. P. Inskipp *et al.*).

**Sussex:** Beachy Head, 25th May (K. Verrall).

**Yorkshire:** Spurn, 30th August to 7th September (B. Banson, J. Cudworth, M. Peacock *et al.*).

(South and east Europe and south-west Asia) Four in a year is just above average for this now almost annual vagrant, which has occurred rather more often in spring than in autumn.

**Woodchat Shrike** *Lanius senator*

**Devon:** Thurlestone, ♂, trapped, 18th May (R. Burridge).

**Kent:** Sandwich Bay, 28th May (Dr J. Grierson, R. K. Walton). Kingsdown, 16th June (N. J. Ball, G. Halliwell, J. N. Hollyer).

**Shetland:** Unst, 29th May (M. Sinclair).

**Wiltshire:** Fyfield Down, 5th September (G. L. Webber, H. R. Williamson).

**Yorkshire:** East Cowton, 10th June (P. S. Elsworth).

(West Europe, south-west Asia and north-west Africa) Also single adults on Cape Clear Island, Co. Cork, on 24th May and from 8th to 11th October. These eight records contrast with 1968's all-time peak of 23 and, indeed, form the lowest total since 1963 (two). The numbers, however, fluctuate greatly. As with the Lesser Grey Shrike, it tends to occur rather more often in spring than in autumn (84 and 70 respectively during 1958-69).

**Rose-coloured Starling** *Sturnus roseus*

**Shetland:** Fair Isle, adult ♀, 15th to 30th June (R. H. Dennis, T. Russell *et al.*).

(South-east Europe and south-west Asia) This species is recorded annually, but the possibility (near certainty in the case of some individuals) of escapes from captivity makes analysis of the movements of wild immigrants impossible. The Fair Isle bird was judged to be wild, though it occurred outside the usual months (July-August) for the nomadic wanderings of this rather irruptive species.

**Ovenbird** *Seiurus aurocapillus*

**Lancashire:** Formby, wing found, 4th January (R. Wagstaffe).

(North America) The chance sighting of a wing protruding from flotsam on the tide-line at Formby led to the discovery of the first known occurrence in Europe of this small, ground-walking warbler. The identification was acceptable but the species was not admitted to the British List by the Records Committee of the British Ornithologists' Union as the bird might not have reached here alive.



**Serín** *Serinus serinus*

**Devon:** Roborough, Plymouth, ♀, 12th July and 14th August (P. F. Goodfellow, M. Tucker).

**Dorset:** seen during the year.

**Durham:** Hartlepool, ♀, 5th May (J. Dicken, J. K. Williams).

**Hampshire:** St Catherine's Point, Isle of Wight, 26th and 27th April (P. Borden, D. Honeybun, D. B. Wooldridge). Wick Hams, Christchurch, ♂, 27th October to 5th November (C. I. Husband *et al.*).

**Kent:** Dungeness, ♂, 9th May and 11th June (R. E. Scott). Tonbridge, ♂, 21st June (E. D. Bushby, Dr J. M. Harrison). Sevenoaks, a pair, 13th and 20th July (F. and S. J. Hammond *et al.*).

**Lincolnshire:** Donna Nook, 4th May (S. Lorand).

**Northumberland:** Inner Farne Island, 28th May (I. R. Deans).

**Scilly:** St Mary's, two, 15th February (R. F. Coomber, D. B. Hunt).

**Somerset:** Clevedon, 2♂♂, 2♀♀, 16th February (K. L. Fox, K. E. Vinicombe).

**Sussex:** one pair bred. Beachy Head, ♀, 17th April, ♂, 5th June (R. H. and Mrs M. E. Charwood).

(Continental Europe, Mediterranean islands, Asia Minor and north-west Africa) The further breeding envisaged in the last report (*Brit. Birds*, 62: 487) has taken place, and the wide spread of dates and localities over southern England suggests more colonisation.

**Scarlet Rosefinch** *Carpodacus erythrinus*

**Fife:** Isle of May, trapped, 16th and 17th September (A. F. Leitch, G. Oliver, R. W. Summers *et al.*).

**Man:** Calf of Man, ♂, trapped, 1st June (Dr R. Costain, R. L. Leavett, M. Wright) (plate 51c).

**Scilly:** Treco, 8th and 9th October (Mr and Mrs J. A. Bailey, B. Pickess *et al.*).

**Shetland:** Foula, ♂, 31st May (Mrs D. Gear, J. G. Holbourn). Fair Isle, 13th August (K. Armstrong, R. H. Dennis *et al.*); two, 16th September, one 17th, two 19th, one 21st to 26th, one, trapped, 11th October (R. H. Dennis *et al.*). Out Skerries, two, 26th and 27th August, one 28th to 1st September, 17th and 18th (R. W. Byrne, I. S. Robertson). Fetlar, 18th to 20th September (A. R. and Mrs H. T. Mainwood, A. R. Mead).

**Yorkshire:** Spurn, trapped, 18th September (J. D. Craggs, G. R. Edwards, B. R. Spence *et al.*).

(East Europe and trans-Asia) Adult males, once very rare here, still form a very small percentage of the records but now seem to occur more often: there were two in 1966, two in 1968 and again two in 1969. The proximity of the dates of these last suggest wild origin, though escapes from captivity are always possible with this commonly imported cage-bird.

**Two-barred Crossbill** *Loxia leucoptera*

**Norfolk:** Blakeney Point, immature, 15th September (Dr S. Cox).

(North-east Europe, north-central Asia, northern North America and West Indies) This is the twelfth since 1958.

**Evening Grosbeak** *Hesperiphona vespertina*

Outer Hebrides: St Kilda, ♂, 26th March (N. Picozzi).

(North America) This is the first known occurrence in Europe of this American finch which, to some extent, moves south in winter.

**Slate-coloured Junco** *Junco hyemalis*

Shetland: Out Skerries, 7th May (I. S. Robertson).

(North America) Though this grey-and-white, sparrow-sized bird is kept in captivity, the four previous British and Irish occurrences were also in May.

**Yellow-breasted Bunting** *Emberiza aureola*

Shetland: Fair Isle, trapped, 14th to 19th September (R. H. Dennis *et al.*); trapped, 20th to 25th (G. J. Barnes, R. H. Dennis *et al.*). Whalsay, two, 1st October (J. Bruce, J. H. Simpson). All immatures.

(North-east Europe and north Asia) This summer visitor has occurred annually since 1958, except in 1960. September is the commonest month, and half have been on Fair Isle.

**Rustic Bunting** *Emberiza rustica*

Shetland: Fair Isle, 8th and 9th June (G. J. Barnes, R. Jarman).

(North-east Europe and north Asia) This species has been recorded every year for at least the last twelve, except in 1961. Fair Isle, where it occurs most frequently, has twice before had birds in June (in 1963 and 1967).

**Little Bunting** *Emberiza pusilla*

Shetland: Fair Isle, 16th to 21st October (G. J. Barnes, Dr W. J. Eggeling *et al.*). Out Skerries, 23rd October, two 24th to 26th (I. S. Robertson).

(North-east Europe and north Asia) This species has produced records annually since 1958, usually in October.

Amendments to the 1968 report

**Black-eared Wheatear** *Oenanthe hispanica*

Man: Calf of Man, ♂, the date should be 30th May, not July (*Brit. Birds*, 62: 477).

**Blackpoll Warbler** *Dendroica striata*

Scilly: St Agnes, the first date should be 12th October, not 11th (*Brit. Birds*, 62: 486).

Supplementary 1960 record accepted

**Black-headed Wagtail** *Motacilla flava feldegg*

Shetland: Vaila, Walls, ♂ showing the characters of this sub-species, mid-May (A. Johnson).

## Supplementary 1968 records accepted

**Cetti's Warbler** *Cettia cetti*

Somerset: trapped, 8th April (locality and name of observer withheld at his request).

**Rose-coloured Starling** *Sturnus roseus*

Hampshire: Fleet, 12th to 23rd June (N. Elms).

Although accepted, this bird is considered probably to have escaped from captivity.

**Scarlet Rosefinch** *Carpodacus erythrinnus*

Orkney: North Ronaldsay, 2nd June (E. J. Williams).

**Appendix 1. List of 1969 records not accepted**

This list contains all the 1969 records which were not accepted after circulation to the committee. It does not include (a) records withdrawn by the observer(s), without circulation, after discussion with the Hon. Secretary; (b) records which, even if circulated, were not attributed by the observer(s) to any definite species; or (c) a few records which were mentioned in 'Recent reports', but of which full details were unobtainable. Birds considered to be escapes are also omitted.

In the vast majority of cases the record was not accepted because we were not convinced, on the evidence before us, that the identification was fully established; in only a very few cases were we satisfied that a mistake had been made.

White-billed Diver	Creetown, Kirkcudbrightshire, 25th January
Albatross sp.	Helli Ness, Lerwick, Shetland, 30th August
Cory's Shearwater	West Haven, Carnoustie, Angus, 15th and 18th June
	Portland Bill, Dorset, 21st September
	North Ronaldsay, Orkney, 22nd September
	Irish Sea, off Fishguard, Pembrokeshire, 15th November
Frigate-bird sp.	off Porthcawl, Glamorgan, 6th July
Magnificent Frigate-bird	Garlieston, Wigtownshire, 29th October
Purple Heron	Shotton, Flintshire, 14th September
Little Egret	Stodmarsh, Kent, 1st June
Great White Egret	Loch Gairloch, Ross-shire, 6th and 7th June
American Bittern	Fort William, Inverness-shire, 15th November
American Wigeon	Loch Ashie, Inverness-shire, 8th July
Surf Scoter	Weybourne, Norfolk, 26th October
Steller's Eider	Thurso Bay, Caithness, 23rd to 30th September
Gyr Falcon	Fetlar, Shetland, 30th September
Red-footed Falcon	Ogston, Derbyshire, 3rd May
	Bishops Dyke, New Forest, Hampshire, 23rd May
	Greatstone-on-Sea, Kent, 12th October
Crane	Morston, Norfolk, 14th March
Baillon's Crane	Rendall, Orkney, 5th and 6th August

Little Crane	Marazion Marsh, Cornwall, 18th August
Great Snipe	Cantley, Norfolk, 28th September
	Thrapston gravel pit, Northamptonshire, 16th November
Lesser Yellowlegs	Eastbourne, Sussex, 18th December
Dowitcher sp.	Storton's gravel pit, Northampton, 5th November
Semipalmated Sandpiper	Settle, Yorkshire, 14th September
	St Agnes, Scilly, 29th September
Broad-billed Sandpiper	Guinard Bay, Ross-shire, 9th September
Wilson's Phalarope	Belvide Reservoir, Staffordshire, 13th September
Pratincole	Shellness, Isle of Sheppey, Kent, 19th August
Cream-coloured Courser	Porlock Hill, Somerset, 1st or 2nd October
Ivory Gull	Covehithe, Suffolk, 9th October
	North Ronaldsay, Orkney, 31st October
Great Black-headed Gull	Scorton, Garstang, Lancashire, 16th March
	Brooklands Lake, Worthing, Sussex, 6th November
Ring-billed Gull	Gairloch, Ross-shire, 30th March
Bonaparte's Gull	Radipole Lake, Weymouth, Dorset, 8th April
	Filey, Yorkshire, 20th June
White-winged Black Tern	Hunstanton Cliffs, Norfolk, 27th August
Whiskered Tern	Chichester gravel pits, Sussex, 29th July
Gull-billed Tern	Cley, Norfolk, 26th October
Pallas's Sandgrouse	Whitstable, Kent, 5th June
Great Spotted Cuckoo	Holford, Somerset, 1st May
Roller	Horsell, Woking, Surrey, 13th July
	Fordwich, Kent, 7th August
Short-toed Lark	St Agnes, Scilly, 5th and 15th October
Red-rumped Swallow	Marazion Marsh, Cornwall, 16th May
Red-throated Thrush	Merthyr Mawr, Glamorgan, 8th April
Wood Thrush	Abersychan, Monmouthshire, 20th to 22nd December
Desert Wheatear	St Mary's, Scilly, 13th to 15th October
Black-eared Wheatear	Wicks/Midrips, Kent/Sussex, 4th May
River Warbler	Perry Oaks sewage farm, Middlesex, 20th September
Aquatic Warbler	Stodmarsh, Kent, 6th July
	Bridge of Don, Aberdeenshire, 23rd August
	Keyhaven, Hampshire, 31st August
	Bardsey, Caernarvonshire, 8th September
Greenish Warbler	Kessingland, Suffolk, 25th June
Bonelli's Warbler	Whalsay, Shetland, 26th May
Pallas's Warbler	Biggin Hill, Kent, 14th January
Collared Flycatcher	Whitchurch, Glamorgan, 28th March
	Shanklin, Isle of Wight, Hampshire, 6th August
Richard's Pipit	Newquay, Cornwall, 8th March
Tawny Pipit	Slimbridge, Gloucestershire, two, 17th September
	Porthgwarra, Cornwall, 12th October
Pechora Pipit	Isle of Canna, Inverness-shire, 12th September
Red-throated Pipit	Whalsay, Shetland, 16th September
	St Agnes, Scilly, 18th September
	Out Skerries, Shetland, 25th and 26th October
Citrine Wagtail	Lewes, Sussex, April
Lesser Grey Shrike	Morvern, Argyll, 15th October
	Salthouse, Norfolk, 16th October
Rose-coloured Starling	Southwold, Suffolk, 1st to 25th October
Citrel Finch	Bude, Cornwall, 17th July and 11th August



## Studies of less familiar birds

### 160 Rufous Bush Chat

Geoffrey Beven

Photographs by M. D. England and A. N. H. Peach

Plates 44-48

The Rufous Bush Chat *Cercotrichas galactotes*, also called the Rufous Bush Robin or Rufous Warbler, was one of the earliest species to be featured in this series, with notes and photographs by A. Stubbs from Iraq (Tucker 1947), and some additional photographs by Antonio Cano in Spain were published later (Ferguson-Lees 1960). The nest photographs now reproduced on plates 44-46 were taken in Castelo de Vide, in central Portugal, in June 1968; those showing display (plates 47-48) are of captive birds hand-reared by M. D. England in his aviaries.

The taxonomic position of this species has excited much discussion, which was briefly summarised by Sage (1960). Long placed among the warblers (Sylviinae), it is now generally included with the thrushes and chats (Turdinae) and put near the wheatears *Oenanthe*, blackstarts *Cercomela* and rock thrushes *Monticola* (Vaurie 1959). In some respects it resembles a warbler. The juvenile plumage is almost unspotted and similar to that of the adult; the long rounded tail is of the same general pattern as those of warblers of the genera *Scotocerca* and *Prinia*, with which it also shares the habit of raising the tail over the back; and the song shows some resemblance to that of the Garden Warbler *Sylvia borin* (Meinertzhagen 1949). The shape and long stout bill, however, and the displays and behaviour, are more characteristic of thrushes.

The Rufous Bush Chat is six to seven inches long, bigger than most warblers but not large for a member of the thrush family. It is made very distinctive by its strikingly long and graduated tail, all but the central feathers of which are tipped with white and have a broad black subterminal band (plates 47-48). It has a conspicuous creamy-white stripe above each eye (plates 44-45), a relatively large and powerful bill (e.g. plate 44b) and long flesh-coloured legs on which it stands prominently (e.g. plate 45b). The species breeds in southern Iberia, the southern Balkans, Asia Minor, the Middle East, the Caucasus, Iran, Afghanistan, Baluchistan and the Soviet Union north to the Aral Sea and Lake Balkhash; and across north Africa south to the borders of Senegal, northern Nigeria, Sudan, Ethiopia and Somalia. It is a summer visitor to the north of this range, wintering in the southern parts and in east Africa south to Uganda and Kenya. There are only nine acceptable records in Britain and Ireland, all in September

or October except for one in Co. Cork in April 1968 (*Brit. Birds*, 62: 477). The species is also a vagrant to Sicily (Orlando 1957), Italy and Heligoland (Peterson *et al.* 1966).

The western race *C. g. galactotes* breeds in the south of the Iberian Peninsula (north to the River Tagus in Portugal), the Balearic Islands, possibly occasionally in southern France, and across north Africa from the northern Rio de Oro and Morocco to Egypt and thence up into Israel and southern Syria. In this subspecies the entire upper-parts are rufous-chestnut and the under-parts sandy-white. The same applies to the similar, but distinctly smaller, race *C. g. minor* which is resident in the semi-arid region south of the Sahara and in the desert massifs of Ahaggar and Air. Further east there is a cline of increasing paleness and greyness. The race found in the Balkans, Asia Minor and northern Syria, *C. g. syriacus*, known as the Brown-backed Warbler, is greyish-brown on the head and back (though the rump and tail are still bright chestnut) and greyish-white below. The easternmost form *C. g. familiaris*, found from the southern Caucasus and Iraq eastwards, is, as its name 'Grey-backed Warbler' suggests, still greyer above and also paler chestnut on the rump and tail. A resident form in the interior of eastern Somalia, *C. g. hamertoni*, is sometimes treated as a distinct species (Meinertzhagen 1949).

The nesting habitats of the Rufous Bush Chat are frequently open scrub or bushy localities in dry sandy areas, often with scattered trees and especially associated with hedges of prickly pear *Opuntia* and agaves, but they vary from river valleys to shrubby desert areas and include gardens with oleander and eucalyptus, hedgerows in cultivated fields, vineyards, orange and olive groves, tamarisk, date palms, and lightly wooded areas (Tucker 1947, Bannerman 1954, Vaurie 1959, Voous 1960). The species winters mainly in savannah country with acacias and scrub.

The Rufous Bush Chat perches conspicuously, often for quite long periods, on the tops of bushes and trees, including palm fronds, and on walls, posts and telegraph wires. Much of its time is spent hopping about on the ground, however, sometimes so rapidly that according to M.D.E. it appears to run when it is in fact hopping. Sage (1960) described the gait in the field as a fast run. Undoubtedly its most striking feature is its tail which is always on the move, slowly up and down or depressed and spread like a fan; often it is cocked vertically, or placed almost horizontally along the back, the wings meanwhile being flicked forward or partly expanded and drooped with tips nearly scraping the ground.

When M.D.E. started keeping Rufous Bush Chats in captivity, he found it impossible to maintain them in good plumage. As soon as they were provided with a dust bath, which they accepted with enthusiasm and now use many times daily, the improvement in their plumage was

amazing. The regular need for dust baths may be an important factor in restricting the species' range to warm, dry and dusty areas.

The food includes spiders and many insects and their larvae, such as ants, caterpillars, mole-crickets and grasshoppers; the last may be as much as two inches long and are pursued and caught with great dexterity. Butterflies and moths are taken in flight, or the bird may hover with rapidly beating wings and fanned tail to pick flies and wasps from flowers. In Portugal we watched the young being fed with beetles, small dragonflies, caterpillars, flies, grasshoppers (which sometimes but not always had had their legs removed), earthworms and berries. A Rufous Bush Chat finds earthworms by moving about on soft ground, pausing at intervals with head cocked much like a Blackbird *Turdus merula*, and every now and then seizing a worm with a quick jab of its bill (Sage 1960). It may wipe its bill after feeding, in the manner of a Song Thrush *Turdus philomelos* (Lambert 1965).

The song is loud and, though short and repetitive, the phrases are rich and musical, with the quality of a thrush or a lark. The bird sings often from the tops of trees or shrubs, or a telegraph wire, or sometimes while performing a beautiful butterfly-like display-flight with uplifted wings. The alarm note is a harsh *teck-teck*. In Portugal we heard birds near the nest uttering plaintive but melodious *tsee-tsee* calls, and a whistle or pipe recalling a Bullfinch *Pyrrhula pyrrhula* or a Nightingale *Luscinia megarhynchos*. M. D. England's captive birds also utter this latter sound every day.

In spring the male Rufous Bush Chat defends his territory and confronts rival males with an imposing aggressive posture described by Sage (1960) and also observed and photographed by M.D.E. with colour-ringed captive birds in his aviaries (plates 47-48). The male stands upright on the ground, stretched to full height with bill horizontal, facing his rival, constantly flirting his fully fanned tail up and then down, actually pressing it on the ground. As the tail is cocked beyond the vertical, it begins to shut and is fully closed when far forward and almost touching the head. Meanwhile, the wings are partially spread and lowered, nearly touching the ground, and flicked well forward and held there for a second or so with their undersides facing forward. A few moments later the wings are folded and the tail is depressed and closed. Occasionally the head is dipped and stretched out with the bill almost on the ground. The defending male may then run backwards and forwards in front of the intruder, with lowered head and puffed-out feathers, sometimes making a quick dash at his rival. The intruding male generally displays defensively, squatting down with tail fully fanned and either depressed or raised vertically, wings drooped and head stretched forward with bill gaping wide. A particularly startling effect is produced when the orange-yellow gape is framed by the black and white tipped feathers of the raised

and fanned tail. Despite this posturing, however, the intruder generally retreats without a fight, closely followed by the defending male. For a short period in June M.D.E. observed that this type of display was elicited among his aviary birds by anything evoking intense emotion, not only by the presence of a rival male but also by a female or even when offered a special delicacy such as a spider, or perhaps by the proximity of another species of either sex in an adjacent aviary. In Portugal we observed one displaying to a Woodchat Shrike *Lanius senator*.

When a male faces the object of his display, sometimes with bill gaping wide, then aggression is indicated. When he displays to the female, however, he keeps his bill closed and he turns sideways or stands facing away from her (see plate 47 which shows the bird from the rear, the photo taken over the top of the female).

Most Rufous Bush Chats arrive in southern Spain at the end of April or in the first week of May, but they do not seem to reach central Spain until near the end of May (Bannerman 1954). We found that they also arrived late in central Portugal and, indeed, some still appeared to be taking up territories in the first week of June or even later. Although the species is usually single-brooded, there may be two broods in Egypt (Witherby *et al.* 1938-41) and two or even three in Iraq where eggs are laid in early May (Tucker 1947, Bannerman 1954). In Spain, Portugal and north-west Africa most eggs are laid in the second half of May or early June (Witherby *et al.* 1938-41, Bannerman 1954). We found a nest with two eggs on 26th May 1960 in Almeria, southern Spain; in one of the nests in central Portugal the eggs hatched in the first week of June and in two more in mid-June, while other nests in the same neighbourhood were still being built at the end of the first week in June. Bannerman (1954) mentioned fledged young still being fed in mid-August in Andalusia.

Nests are usually built within a few feet of the ground in bushes and small trees, often among main branches near the trunk and especially in hedges of prickly pear, in olive trees, among vines and on palm fronds. Of six nests found by us in 1968 in Castelo de Vide, Portugal, and described by Bugalho (1968), four were in olive trees between five and nine feet up (one being shown in plates 44-45), one in a vine two feet up (plate 46) and one at a height of 13 feet on the frond of an ornamental palm. In the past, prickly pear has been regarded as the most favoured site, but in this neighbourhood no nests were found among the many prickly pears in spite of much searching; and in Almeria, Spain, Cano (1960) thought that Rufous Bush Chats were nesting in orange trees with increasing frequency. In Andalusia, however, we discovered one nest 4½ feet up in a large patch of spineless prickly pear, while another was well hidden in the broken top of a five-foot tree stump in an olive orchard.



The nest itself, built by both sexes (Dementiev and Gladkov 1954), is rather untidy and loosely constructed and would tend to disintegrate were it not for the surrounding supports. It is made of coarse grasses and rootlets with a thick lining of wool, hair and flowerdown (plate 46a), while in Tunisia, Palestine and Iraq a piece of snakeskin is often incorporated (Meinertzhagen 1930, Witherby *et al.* 1938-41, Tucker 1947, Bannerman 1954). While we watched one bird bringing material to a nest in Portugal, four other Rufous Bush Chats perched near-by, occasionally flying up and inspecting the nest.

There are usually four eggs, but there may be as few as two or as many as six; they are white or greenish-white closely spotted and streaked with reddish-brown or umber-brown (plate 46a), though sometimes the spots are more thinly scattered. Incubation is by the female alone (Dementiev and Gladkov 1954). As the period does not seem to have been recorded, it may be of interest to mention that in Portugal on 1st June we found a nest complete but empty; on 17th June there were four chicks, all apparently hatched on that day. This seems to indicate an incubation period of at most 13 days. Cano (1960) gave evidence suggesting that one brood of young left the nest on the fifteenth day after hatching.

Young in the nest already have rufous feathering on the back and a well-marked supercilium; their tails, though still short, are often cocked vertically. Four days after fledging they make a loud chirrup like a toy canary whistle; this sound has been tape-recorded at 14 days by M.D.E. Fully fledged juveniles are very like adults, but paler and sandier above, and very faint buff below with a slight speckling produced by dark sandy tips to some of the feathers; they also show less black on the tail-feathers.

#### ACKNOWLEDGEMENTS

It is a pleasure to thank Sr J. F. Bugalho and his family for allowing us to photograph the birds on their property in Castelo de Vide and also him and Sr Antonio Cano, who assisted us in Almeria in 1960, for their help in the field and for many other kindnesses. I am also grateful to M. D. England and other members of his party for allowing their observations to be incorporated in this account.

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## Notes

**Diving times of Red-necked Grebe** In the paper by D. E. Ladhams on the diving times of grebes (*Brit. Birds*, 61: 27-30), the only British species not mentioned was the Red-necked Grebe *Podiceps grisegena*. Between 31st January and 7th March 1968 we timed 155 feeding dives, and 40 intervals between dives, of a Red-necked Grebe on the west water at New Theale gravel pits, Berkshire. The mean duration of dive was 25.0 seconds (range 8.2-40.9), and the mean interval between dives was 19.4 seconds (range 0.5-45.0). Between 12th February and 10th March 1968 we also timed 30 feeding dives of the Great Crested Grebe *P. cristatus* on the same pit, for comparison. The mean duration of dive was 22.4 seconds (S.D. 2.1, range 8.0-39.0). Only seven intervals between dives were timed: all exceeded one minute (range 90-114 seconds). Table 1 shows the percentages of the total number of dives of the Red-necked Grebe in four-second intervals.

Table 1. Percentages of total dives of Red-necked Grebe *Podiceps grisegena* in four-second intervals

Time in seconds	%	Time in seconds	%	Time in seconds	%
8-12	1.3	20-24	27.0	32-36	9.7
12-16	7.8	24-28	21.4	36-40	4.5
16-20	11.4	28-32	16.3	40-44	0.6

Total dives	155
Range (seconds)	8.2-40.9
Mean (seconds)	25.0
Standard Deviation (seconds)	$\pm 5.0$

The difference between the mean durations of dives of the two species is greater than twice the standard error of difference (0.51). Thus, although the Red-necked Grebe is smaller than the Great Crested, the mean duration of its dives was found to be significantly greater. The depth of water over the 17 acres of the pit varied between two and twelve feet with a mean of just over ten feet. While the Red-necked Grebe was diving almost without exception in ten to twelve feet of water, several of the dives of the Great Crested were in relatively shallow regions, and this may at least partly explain the difference between the mean durations of dives of the two species.

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**Duration of dives in the Red-necked Grebe** The Red-necked Grebe *Podiceps grisegena* has a reputation for making dives of long mean duration, e.g. 53 seconds (P. G  routet, 1965, *Water Birds with Webbed Feet*), 55 seconds (A. C. Bent, 1919, *Life Histories of North American Diving Birds*) and about one minute (R. S. Palmer, 1962, *Handbook of North American Birds*, vol. 1). Such records, however, are of limited value and other sources indicate dives of shorter mean duration, for example 18.4 seconds (J. M. Dewar, 1924, *The Bird as a Diver*), 20 seconds (G. C. S. Ingram and H. M. Salmon, *Brit. Birds*, 35: 22-28) and 25.0 seconds (C. G. Hancock and P. J. Bacon, *Brit. Birds*, 63: 299-300); see also S. Onno (1958, *Pri. Ak. Nauk. Est. SSR*, 51: 263-276).

This lower trend is also supported by 189 timings I myself made of feeding dives by Red-necked Grebes: 59 on the Danish island of Zealand between 7th and 18th June 1967 and 130 in Somerset on 26th and 30th September 1969. The Danish records were of various birds on one small breeding pond (Knardrup So, near Maalov) and of a male and female on another (Kildeholm So, near Stenl  se). As all the samples are similar, the data are combined in table 1 (column 1). The depth of water in both ponds was unknown but was probably at least six feet. The Somerset records all involved a single, transient, juvenile diving off the north shore of Cheddar Reservoir, in water up to twelve feet deep. The data for this bird are combined in column 2 of the table and are also given separately for each of the two dates in columns 3 (26th) and 4 (30th). The difference between the means of columns 1 and 2 is statistically significant ( $t=3.7$ ,  $p<0.01$ ), as is the difference between the means of columns 3 and 4 ( $t=5.1$ ,  $p<0.01$ ).

Thus the Somerset grebe was making significantly longer mean dives than the Danish birds and they also differed significantly on the two dates. All these variations seem chiefly correlated with the different depths of water in which they were diving. Firstly, the Danish ponds were shallower than Cheddar Reservoir and then, at the latter, the bird

was diving in somewhat different spots on the two dates. On 26th September it hunted mainly on a line at right angles to the shore, from some 200 to about 25 yards out, the dives tending to be briefer as the bird submerged in shallower water nearer the bank. On 30th, as well as diving in much the same area as before, it also hunted further east where the water was shallower as the floor of the reservoir sloped upwards towards a muddy shelf. Many of its dives there were of shorter than average duration.

There are several factors influencing the duration of dives by aquatic birds, especially the grebes, and short series of timings can produce a wide spread of values. The depth of water, however, is probably the most important single factor determining the *mean duration* of a long series of dives. The influence of water depth was stressed long ago by Dewar (*op. cit.*), though his findings are now in need of critical re-evaluation.

The time has perhaps now come when data on diving times should be standardised for comparative purposes, e.g. in regional handbooks. Timings in units of 100 dives per species (or population) would seem desirable. The type of dive should also be specified, for the problem has been complicated in the past by observers who have combined the timings of different types of dive. This is especially misleading in a group of such versatile diving birds as the grebes which dive not only to feed but also to collect nest-material, to bathe, to travel from point to point, in alarm, when courting and so on. The feeding (or hunting) dive—as used, for example, by Ladhams (*Brit. Birds*, 61: 27-30), Hancock and Bacon (*loc. cit.*) and in the present contribution on the Red-necked Grebe—would seem to be the most suitable unit. A further

Table 1. Percentages of total dives of Red-necked Grebes *Podiceps grisegena* in five-second intervals, and other data

See page 300 for the localities and dates of each column

Time (to nearest second)	1	2	3	4
11-15	5.1	—	—	—
16-20	15.3	6.9	2.0	10.0
21-25	27.1	19.2	4.0	28.8
26-30	44.1	30.0	36.0	26.2
31-35	8.4	30.0	38.0	25.0
36-40	—	12.3	18.0	8.8
over 40	—	1.5	2.0	1.2
Total dives	59	130	50	80
Range (seconds)	14-34	16-42	18-41	16-42
Mean (seconds)	24.8	29.3	31.6	27.9
Median (seconds)	26.0	30.0	31.5	27.0
Standard error (seconds)	±0.7	±0.5	±0.7	±0.7



source of error is the combining of records from waters of quite different mean depths.

Ideally, therefore, the observer should time at least 100 feeding dives, giving the precise locality of the records and, if possible, any relevant information on the depth of water. Apart from the usual numerical data (number of dives, frequency distribution, range and mean), it is also useful to include the median duration and standard error of the mean, so as to give a better idea of the uniformity (or otherwise) of the sample.

These observations were made during the tenure of a N.E.R.C. special research grant at the Department of Psychology, University of Bristol. I am indebted to Dr U. Weidmann (University of Leicester) for checking and testing the numerical data.

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**Mass behaviour of Shovelers** I was interested to read the note from Clive Bagshaw and Peter Curry on the mass behaviour of Shovelers *Anas clypeata* (*Brit. Birds*, 62: 281-282). In *Voices of the Wild* (1957) I described similar behaviour which I had witnessed in Holkham Park, Norfolk, in February 1955. It reads as follows: '... I saw a mass display of some forty shoveler on the lake in which all the birds were packed into a raft on the water no bigger than a kitchen table. All the birds, drakes and ducks, were head to tail and progressing in a fairly rapid clock-wise movement, giving short, subdued 'hnuk-hnuk's. From time to time some birds would shoot off at a tangent as if thrown out by centrifugal force, and then would hurry back again into the milling throng'.

The recording that I made to supplement this observation is in the B.B.C. archives, number 15149, front, band 4.

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On 11th February 1970, at Startops End Reservoir, Tring, Hertfordshire, I saw a party of about 15 Shovelers formed into a tight clump on the water, each in the dabbling position, the whole group spinning round as one. There appeared to be no space anywhere between the individual birds.

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In addition to these observations, D. E. Ladhams (1969, *Bristol Orn.*, 2: 78-79) described small groups of Shovelers (totalling 40-350, mostly drakes) indulging in such behaviour on Chew Valley Lake, Somerset, almost daily from October 1967 to January 1968. EDS

**Alpine Choughs attacking putty** I was very interested to read Miss Eileen M. Palmer's note on a Magpie *Pica pica* attacking the

putty around the windows of her house (*Brit. Birds*, 62: 79), and also T. Simpson's account of this species' regular habit of eating putty in Merioneth (*Brit. Birds*, 63: 177). Whilst visiting the village of Meiringen, Switzerland, in April 1965, we watched Alpine Choughs *Pyrrhocorax graculus* attacking and levering putty away from windows. They were not seen to eat any, nor to carry any away as a possible nest material. We could only assume that their object was to search for insects hidden beneath the dry putty. We mentioned the incident to the hotel manager, who was also a naturalist; he replied that Alpine Choughs frequently attacked the putty every winter, when they were forced to descend from the mountains into the villages. So common indeed was the practice that it was a source of concern and annoyance to the local residents.

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This appears to be the first record of such behaviour by Alpine Choughs, but the habit of pulling away old dry putty must be distinguished from that of apparently eating fresh putty, as in T. Simpson's note and also that by H. G. Lay concerning various passerine species (*Brit. Birds*, 63: 38-39). EDs

## Reviews

**Systema Avium Romaniae.** By Georges D. Vasiliu. 'Alauda', 34 rue Hamelin, Paris 16e, 1968. 120 pages. 32 Frs.

The author describes in his introduction the changes—including the growth of mechanised agriculture, the draining of marshes along the Danube and the intensive commercial exploitation of reeds in the Danube Delta—which have affected the distribution and numbers of many Romanian birds since the publication of the three-volume work by R. von Dombrowski and D. Lintia (1946-55). This revised list is therefore welcome and, being in French, will be more accessible to many ornithologists outside Romania. Arranged basically in the Wetmore-Peters order, it is very much more than a check-list, giving the present status and distribution of all species in some detail and (especially for the larger species of the Delta) fairly full accounts of the changes in numbers and sites of the main colonies, up to 1965 in most instances. The enlightened measures of the Romanian Government have done much to arrest and often reverse the earlier declines of the Delta species, though this vital area, one of the most important wetland regions in Europe and indeed in the world, remains vulnerable to development. It is otherwise with the birds of prey, where most of the larger species, especially the vultures, have become rare or extinct. There is a valuable and extensive bibliography.

STANLEY CRAMP

**The Hamlyn Guide to Birds of Britain and Europe.** By Bertel Bruun and Arthur Singer. Consultant editor, Bruce Campbell. Paul Hamlyn, London, 1970. Limp covers; 319 pages; 516 species illustrated in colour; 448 distribution maps. 25s.

No doubt many bird-watchers familiar with *Birds of North America* by Robbins, Bruun and Zim, illustrated by Singer (1966) will have keenly anticipated the publication of a European identification guide similar in format and equally authoritative. *The Hamlyn Guide* is by one of the authors and the artist of *Birds of North America* and, being similar in style, clearly represents competition for the leading European identification guide: but how serious a competitor—is it good enough to succeed *A Field Guide to the Birds of Britain and Europe*?

*The Hamlyn Guide* covers the continent of Europe eastward to about the 50°E line of longitude, and consequently a number of the 519 species dealt with are not included in competitive guides. All the species included in the main text have been recorded at least five times this century, and a further 80 species recorded less frequently are relegated to an appendix listing the scientific name, geographical origin and countries of occurrence. Half of these 80 species are North American vagrants which are well documented in American field guides, but the other 40 are neither as well nor as conveniently described, so that the lack of brief notes giving salient field characteristics is particularly unsatisfactory. There are the usual introductory sections, many of which are reminiscent of other guides, but the layout of the main text is excellent and will be difficult to improve upon for ease of reference. The summary and distribution map for each species face the appropriate illustrations on the opposite page, liberating the reader from the often tedious task in other guides of locating the text and then various illustrations seemingly dotted about at random. All but eight of the 519 species, plus a few subspecies, are depicted in colour at an average of four species per two-page spread, and there are also four double-page illustrations featuring birds of prey in flight, waders in winter plumage, immature gulls in flight, and female/immature buntings. To fit all this into a pocket-sized, yet authoritative, book of just over 300 pages clearly presented considerable problems. Unfortunately, even a brief examination shows that Bertel Bruun and Arthur Singer have not completely succeeded, as there are deficiencies both in the text and in the illustrations.

Each species summary gives total length, wing-span, an indication of abundance, brief details of habitat, identification features and voice in a single section of text, with status in Britain and Ireland indicated in abbreviated form at the foot. The condensations for the summaries, which vary in length from 16 to over 200 words, have not been done particularly well and the reader would almost certainly find separate sections on identification, voice and habitat easier

to absorb. From the identification student's point of view it is unfortunate that many of the finer points of identification, and in some cases even the more obvious ones, are lacking and the treatment afforded a number of less well-known or 'difficult' species is exceedingly cursory. Even more disturbing, though, are the errors. For example, it is stated that Gull-billed Terns may be recognised in all plumages by 'very white wings' whilst omitting any reference to the species' grey rump and tail; that Pratincole can only be separated from Black-winged Pratincole by the colour of the under-wing; the length of both Least and Pectoral Sandpiper is given as six inches; and readers are led to believe that during the breeding season the bills of female Barrow's Goldeneye are all yellow, lacking the Goldeneye's black base, when only the Rocky Mountain population has largely yellow bills.

The distribution maps indicate breeding ranges in red, winter ranges in blue and year-round presence in purple. Roman numerals show the months of the year when a species occurs in a given area and arrows the general directions of movements. Consequently, although less than one inch square, the maps are more useful than those in other guides, but they are similarly limited by scale and the necessity for treating areas where a species is thinly distributed identically with areas where it is plentiful. The accuracy of the maps is generally good but there are occasional lapses, such as omitting to show the Corsican population of Corsican Nuthatch, and depicting a breeding range for White-rumped Swift which appears to be a curious mixture of that for Little Swift and White-rumped Swift, while the Robin is shown as wintering in the southern North Sea.

In illustrating the guide Arthur Singer has made effective use of small supplementary illustrations of birds in flight. Whilst some plates are both attractive and useful, the overall quality of his work on this occasion is rather variable, generally falling below the standard of *Birds of North America*. Many illustrations fail to portray the 'jizz' of the species, as if the artist often had to rely more on skins than on personal knowledge, and proficient field ornithologists will be able to find far too many errors. Faults of reproduction may possibly be responsible for some, like the throat colour of the Red-throated Pipit in summer plumage or the yellowish bill of the adult Mediterranean Gull, but generally the quality of the printing appears to be reasonably good. Other errors, such as the virtually identical structure of the marsh terns, the buffish head of the male Linnet, the eye colour of Ménétries' Warbler, the flight patterns of bustards, and the incorrect flight illustrations of Great Crested and Red-necked Grebes where the wing markings are transposed, are clearly the artist's responsibility. There are also a number of errors in the captions: the flight illustration of Lesser Grey Shrike is in fact of a Great Grey



Shrike and vice versa; the female Hawfinch is a juvenile; the heads of two female Goldeneye/Barrow's Goldeneye are captioned male and female summer; the captions for the redpolls are extremely misleading.

The final test of any identification guide is, of course, its success in the field, so the *Hamlyn Guide* was used in direct comparison with the *Field Guide* during a brief holiday in Spain and Portugal. All of the 200 or so species seen could be identified using either guide, but identification was more difficult from the *Hamlyn Guide* as the text was undoubtedly inferior, failing for example to mention the possible confusion of the greyish Spanish race of Green Woodpecker with Grey-headed Woodpecker, and even omitting to refer to such prominent field marks as the very dark under-wing of Calandra Lark. On the credit side the *Hamlyn Guide* was considerably easier to use due to its excellent layout, but unfortunately this was not to last as the book virtually fell apart in normal use as a result of the extremely poor binding. Subsequent enquiries revealed that of five other copies three had also soon disintegrated, and it is to be hoped that the publishers will rectify this serious defect in future editions.

To summarise, the *Hamlyn Guide* deals with more species than its competitors and is easier to use but, despite the publishers explicit claim, it is far from complete and therefore unlikely to replace the *Field Guide* as the European field ornithologist's bible. At best the text and illustrations, like the curate's egg, are only good in parts, and because of the atrocious binding the good parts may well be lost!

R. J. JOHNS

## Letters

**Financial support from bird-watchers** I agree with A. F. Mitchell's letter on 'Spotting rare birds' (*Brit. Birds*, 62: 547), and I feel that it raises one very important point. I do not think that one can compare the activities of golfers and anglers with those of bird-watchers. The first two differ in one important respect: they have to pay for their hobby. Membership of the golf club nearest to the R.S.P.B. at Sandy costs £25 per year, plus an entrance fee of £30 and an annual surcharge of £3 because three more holes are being built.

Although 'tick-hunting', or whatever aspect of ornithology one wants to pursue, should be pursued without the tiresome comments of others who wish us to think that they are above that sort of thing, we should all be prepared to put something back into the hobby; if it is not facts (or fiction?) then it should at least be cash. There is not much chance of a golf course going under bricks and mortar when the annual income (excluding bar takings) is in the region of £12,000. Cannot the same apply to a local marsh or reed-bed?

There is no need to list here all the organisations that one should consider supporting, but personally I feel that the average bird-watcher, getting pleasure from the countryside every weekend, should be supporting local and national protection and conservation societies to the extent of at least £20 a year.

R. F. PORTER

147 St Neots Road, Sandy, Bedfordshire

**Photographs wanted of birds of prey in flight** A team of four ornithologists (Steen Christensen, Bent Pors Nielsen, Ian Willis and myself) who have been studying raptors for a number of years has been invited to undertake a series of eight papers on the identification of European birds of prey for intended publication in *British Birds*. The emphasis will be on flight characters; we shall be illustrating all species with drawings and, where possible, with photographs. We would be most grateful if anyone who has any photographs of European raptors in flight could send them to me at the address below. Black-and-white prints are preferred, but suitable reproductions can sometimes be made from colour transparencies so we shall be glad to see them as well. For such an important venture we want to use the best photographs available, but those not of the highest quality will also be very welcome if they show points relating to field identification.

We expect that the first two papers, covering the buzzards, kites and eagles, will be ready for submission to the editors by February 1971, and we should like to have photographs for selection well before then. All prints and transparencies will be acknowledged and then returned when finished with.

R. F. PORTER

Royal Society for the Protection of Birds, The Lodge, Sandy, Bedfordshire

**Development of binoculars** During my 25 years' experience in ornithology I have noticed subtle changes in the design of binoculars. For instance, specifications like  $6 \times 30$  or  $8 \times 30$  have been superseded in popularity by  $9 \times 35$  or  $10 \times 50$ ; designs have been developed especially for ornithologists; German and British manufacturers have been challenged by the Japanese.

As a matter of curiosity, I would like to look back beyond my own experience and find out what kind of optical aids were available to my ornithological predecessors—men like Montagu, Gould, Selous and Coward. How did the quality of their equipment compare with today's? What sort of prices would they have had to pay?

I must stress that I am not seeking a technical history of binoculars, such as appears in *Encyclopaedia Britannica*, but from the viewpoint of ornithological history would be very interested to learn how optical aids of former days compared in design, price and performance with those available to us now.

K. G. SPENCER

3 Landseer Close, off Carr Road, Burnley, Lancashire

## News and comment     *Robert Hudson*

**Birds as vectors of plant diseases** There is growing evidence that birds may act as vectors of animal diseases (see 'News and comment', *Brit. Birds*, 63: 261), while a recent paper in the *Canadian Journal of Botany* (48: 907) has demonstrated that birds can also be vectors of plant diseases. Two research workers at the University of Minnesota trapped a number of Swallows at their breeding sites, and isolated no fewer than 20 genera of fungi from their feathers. These birds were then ringed, and before release were sprayed with the spores of two easily identifiable fungi. The birds were recaptured at intervals over the following 45 days, and the fungi survived throughout that period. In a second experiment, a number of birds were released among sterile oat plants, then transported in a cage to a field of infected oats, and finally re-exposed to sterile plants. The first set of sterile oats remained disease-free (showing that the birds were 'clean' initially), but of the second set of sterile plants over half developed fungal diseases which could only have been brought in by the birds. The implication is that birds are capable of transporting plant pathogens, as had been suspected, for example, in the cases of potato wart disease in Denmark, certain yeasts in French vineyards, and the spread of 'blister blight' of tea plants from Ceylon to Sumatra. The importance of the University of Minnesota experiments is their demonstration of the ease with which birds can carry fungi, so that the problem may be more serious than had been suspected previously.

**A record quiz** A departure from the usual run of bird-sound discs is the latest one published by Victor Lewis, which should provide entertainment for society meetings or informal gatherings. Side 1 gives 65 songs and calls of 24 bird species, mainly passerines, each being identified verbally. On the reverse side, the first two bands give shortened excerpts from Side 1, in random order and identified by numbers, and form the basis of an instructive quiz. Band 3 gives even shorter snatches, without identification numbers, and is a real test for even the experienced. This disc is distributed by H.M.V. Records, number XLP50011, price 27s 3d.

**Nature reserves in Northern Ireland** On 4th September the Ulster Minister of Development declared twelve areas as nature reserves under the Amenities Lands Act, 1965. Five of these are examples of native woodland, of which there are few remaining now in Northern Ireland; these are Breen Forest in Glenshesk (Antrim), three islands (Inishmakill, Cleenishmeen and Cleenishgarve) in Lower Lough Erne (Fermanagh) known collectively as the Castle Archdale Forest Nature Reserve, Correl Glen Forest near Lough Navar (Fermanagh), Marble Arch Forest (Fermanagh), and Rostrevor Forest (Down). Boglands undamaged by man are now particularly rare, and three important ones are to be preserved: 118 acres of peat bog in Slieveanorra Forest (Antrim), 55 acres displaying bog development in Killeter Forest above the Derg valley (Tyrone), and 60 acres of western maritime-type bog by Lough Naman (Fermanagh). Three other reserves are a two-acre stretch of rocky foreshore of special geological interest at Portrush (Antrim); 418 acres of Randalstown Forest (Antrim), consisting of a deer park, part of the Lough Neagh foreshore and adjacent alder and willow scrub; and 450 acres in Co. Down of former tidal estuary now changing to freshwater pondage after the construction of a barrage across the River Quoile. The siting of the twelfth Ulster nature reserve has not been revealed, being 'of such a fragile nature that no publicity is being given to it, though scientists and students will be facilitated in obtaining access to it'. To the ornithologist, the most important of these new reserves are Castle Archdale, which has breeding Common Scoter and *Sylvia* warblers (the

latter being scarce in Ireland); and the Randalstown Forest and Quoile Pondage wetland reserves, both of which are important wintering areas for waterfowl.

**A welcome for CoEnCo** In 1963 the Duke of Edinburgh convened the first Countryside in 1970 Conference, at which some 2,000 constituent and amenity societies were represented either directly or indirectly; the third such conference will be held this year in conjunction with ECY 70. Naturalists are by no means alone in feeling concern for environmental conservation, and an important function of the Countryside in 1970 Conferences has been the bringing together of diverse bodies with this common interest. To continue this liaison into the future, the Committee for Environmental Conservation (CoEnCo) has been formed. Its purpose is to harness the local and specialised expertise of voluntary bodies by providing an organisation at national level which will be able to speak authoritatively to Governments on matters of general principle affecting the environment. CoEnCo will in no way interfere with the activities of any existing bodies, but will act for them (when asked) on matters transcending their terms of reference, and attempt to settle points of conflict between different environmental interests. CoEnCo is concerned with the whole environment. To avoid unwieldiness, the Committee will be limited to 18 members, representing amenity, wildlife, outdoor recreation, archaeology and architecture, air, soil, water and noise and regional interests. The first joint secretaries are Peter Conder (Council for Nature) and A. F. Holford-Walker (Council for the Preservation of Rural England).

**Personalities** It was revealed in early September that Dr D. A. Ratcliffe has been appointed Deputy Director (Research) of the Nature Conservancy. Derek Ratcliffe joined the Conservancy (Scottish office) in 1956 as a botanist, and is part author of the classic work *Plant Communities in the Scottish Highlands*. Since 1963 he has worked at the Monks Wood Experimental Station. In the early 1950's he noted that British Peregrines were breaking their own eggs, and subsequently he chronicled the sharp decline of this species. In relating his observations to sub-lethal toxicity from organochlorine pesticides, which resulted in abnormally thin egg-shells, he established an international reputation in the field of pesticide research. Latterly, he has been engaged on the important task of classifying all sites of scientific importance in Britain, having sole responsibility for working out the rationale and methodology of this great undertaking.

Derek Ratcliffe replaces Dr Martin Holdgate, who this year was seconded to a new post as head of a central pollution unit under the then Labour minister, Anthony Crosland. When the new Conservative Government abolished Mr Crosland's office of Secretary of State, and with it the key position held by the pollution unit, fears were expressed for the future of Holdgate's team. It is understood that Dr Holdgate, being merely seconded to his present position, could have returned to the Nature Conservancy had he wished; but the naming of a successor there leads one to suppose that Dr Holdgate has been given reason to believe that he will be able to continue in the role envisaged by Mr Crosland. This impression is strengthened by the news that Ian Prestt is to leave Monks Wood to join Dr Holdgate's Whitehall team. (After this item had gone to press, the Government announced its conservation plans; these will be referred to in a later edition of 'News and comment'.)

The loss to the Monks Wood scientific staff of Dr Ratcliffe and Mr Prestt must inevitably leave a noticeable gap there. This will be partially offset, however, by the transfer to this Research Station of Dr R. K. Murton, whose work for the Ministry of Agriculture's Infestation Control Laboratory (notably on pigeons) is so well-known.

*Opinions expressed in this feature are not necessarily those of the editors of British Birds*



## Request for information

**Birds of Libya** J. H. Morgan and G. Bundy are collecting material for a work on the birds of Libya. Anyone who can forward unpublished notes will receive grateful acknowledgement. Data on breeding distribution, especially in desert areas, are particularly required. Notes on unusual species should be as complete as possible. All records should be sent to **Graham Bundy**, c/o S.R.A.F., 431 M.U., R.A.F. Bruggen, B.F.P.O. 42.

## Recent reports *P. F. Bonham*

These are largely unchecked reports, not authenticated records

This report summarises the records for June 1970 and, unless otherwise stated, all dates refer to that month. After the avalanche of migrants and vagrants in May, the picture for June seems rather bare; several species prominent in the May influxes (for example, **White-winged Black Terns** *Cblidonias leucopterus* and **Ortolan Buntings** *Emberiza hortulana*) produced not one record, and there were only a handful of migrant **Wrynecks** *Jynx torquilla* and **Bluethroats** *Luscinia svecica* after more than 100 of each in May.

### HERONS TO CRANES

A **Purple Heron** *Ardea purpurea* at Wormleighton (Warwickshire/Oxfordshire) on 18th April has only just come to our notice, and another correction to earlier reports concerns the two in the Taw Estuary (Devon) which stayed until at least 23rd May (cf. *Brit. Birds*, 63: 143). During June the total for 1970 was brought to 26 by birds at Shepperton gravel pit (Middlesex) on 2nd, Fair Isle (Shetland) from 4th, to 11th, Leighton Moss (Lancashire) from 18th to 20th, Leeds (Yorkshire) on 20th and Minsmere (Suffolk) throughout the last week of the month. An even more remarkable feature of the spring was the total of at least 35 **Little Egrets** *Egretta garzetta*. June reports included singles in the Swale area of north Kent on 7th and 10th, at Clonakilty (Co. Cork) from 7th and at Minsmere on 13th, and one was again seen at North Coates (Lincolnshire) on 29th. The year's second **Squacco Heron** *Ardeola ralloides*, an adult in full breeding plumage, was watched on the Ouse Washes near Manea (Cambridgeshire) on 12th, and **Night Herons** *Nycticorax nycticorax* appeared at Radipole Lake, Weymouth (Dorset) early in the month and at Felmersham (Bedfordshire) on 16th. A male **Little Bittern** *Ixobrychus minutus* discovered in Somerset on 6th June stayed until 13th July, and an adult was seen at Loch Lindores (Fife) on 13th June, the sixteenth so far in 1970. As in May, **Spoonbills** *Platalea leucorodia* were widely reported, mostly from East Anglia where there were up to six together at Breydon Water (Norfolk) and up to four at Minsmere; elsewhere single birds appeared at Oxwich (Glamorgan), Leighton Moss, Beal Point (Northumberland) and Loch of Strathbeg (Aberdeenshire).

Not surprisingly, there is little to say in this summary about seabirds and wildfowl. A **Sooty Shearwater** *Puffinus griseus* was seen off Hartlepool (Co. Durham) on 6th. The **Blue-winged Teal** *Anas discors* at Low Newton (Northumberland) on 30th May (*Brit. Birds*, 63: 222) reappeared at Cresswell on the same coast on 4th June, and a **Long-tailed Duck** *Clangula hyemalis* was seen near Lerwick (Shetland) on 29th. Five or more **Barnacle Geese** *Branta leucopsis* may have been escapes: two on the Isle of Sheppey (Kent) on 7th, perhaps the same as the pair which arrived at Sevenoaks (also Kent) on that day, two at Minsmere on 9th and one at Dungeness

(Kent) from 10th to 20th. Dungeness also provided the most absurd report of the month, that of two **Black Swans** *Cygnus atratus* flying east offshore on 15th, though an **Egyptian Vulture** *Neophron percnopterus* at Donna Nook (Lincolnshire) on 12th must be rated a close second! A **Buzzard** *Buteo buteo* on the Calf of Man on 1st was very unusual, as none breed in the Isle of Man and they rarely occur there, while two other unexpected raptors were a **Black Kite** *Milvus migrans* on Treseo (Isles of Scilly) on 4th and a **Honey Buzzard** *Pernis apivorus* on Fair Isle from 24th until 29th, when it was found dead. Some ten **Ospreys** *Pandion haliaetus* were reported from almost as many English counties (compared with about 35 in May), and migrant **Hobbies** *Falco subbuteo* were seen at Spurn (Yorkshire) (two), Bardsey (Caernarvonshire), Thornham (Norfolk), the Ouse Washes, Minsmere and Sidlesham (Sussex) (two). Some may have been Continental birds which had overshot their breeding grounds, like the **Red-footed Falcons** *F. respublicus* on Yell (Shetland) from 7th to about 24th, at Reculver (Kent) from 14th to 17th and at Soussons, Dartmoor (Devon), on 20th.

The 'bird of the month' for many observers must have been **Quail** *Coturnix coturnix*, about 35 being found in the Bristol area alone and the total number reported exceeding 100. The main concentrations appear to have been in the south-west and right across the Midlands, but others were present in East Anglia and the south-east. The furthest north to our knowledge were two in Shetland, two at Yetholm (Roxburghshire) and one on the Calf of Man. The year's second **Baillon's Crake** *Porzana pusilla* was recorded at Fairburn Ings (Yorkshire) from 6th to 13th, and another unexpected crake found in Yorkshire on 6th was a **Cornerake** *Crex crex* at Spurn. Lastly, a single inland record of a **Crane** *Grus grus* at Middleton Cheney (Northamptonshire) on 19th must inevitably be qualified by the usual caveat regarding its origin.

#### WADERS, SKUAS, GULLS AND TERNS

**Kentish Plovers** *Charadrius alexandrinus* were almost certainly under-reported: the only ones of which we have heard were at Blackpill, Swansea Bay (Glamorgan) on 8th and at Cley (Norfolk) on 11th. **Wood Sandpipers** *Tringa glareola* and **Little Stints** *Calidris minuta* were reported in small parties of up to four from about a dozen localities, and single **Temminck's Stints** *C. temminckii* were seen at Marazion (Cornwall) on 5th and 6th and on St Kilda (Outer Hebrides) on 24th. At Marazion the Temminck's Stint was followed on 7th and 8th by a **Least Sandpiper** *C. minutilla*, the first spring record for Britain and Ireland. Single **Curlew Sandpipers** *C. ferruginea* appeared at Rainham (Essex) on 7th and at Minsmere from 13th to 15th and on 27th and 28th, and eight were recorded in Teesmouth (Co. Durham/Yorkshire)—three on 1st and five on 13th. Apart from several reports of up to four **Avocets** *Recurvirostra avosetta*, small flocks were seen away from the Suffolk coast at Beachy Head (Sussex) (six on 7th), Cley (15 on 8th) and Dungeness (nine on 17th).

The only unusual skua sighting was of a **Long-tailed Skua** *Stercorarius longicaudus* off Ballycotton (Co. Cork) about mid-June, and the only reports of **Glaucous Gulls** *Larus hyperboreus* which came to our notice were three in Northumberland and singles at Teesmouth and on Fair Isle. The last locality also provided a report of an **Iceland Gull** *L. glaucoideus* from 3rd to 5th, and another was identified on Unst (also Shetland) on 15th. **Mediterranean Gulls** *L. melanocephalus* were seen at Sandwich Bay (Kent) and in north Essex, and a male bred successfully with a female **Black-headed Gull** *L. ridibundus* at Needs Oar Point (Hampshire), raising three hybrid young as in 1968 (*Brit. Birds*, 63: 70-71). **Little Gulls** *L. minutus* reached a maximum of 14 at Minsmere on 8th with a number of reports of up to twelve elsewhere. A **Sabine's Gull** *L. sabini* was reported from Bodymoor Heath (Warwickshire) on 7th. Well over 300 **Black Terns** *Chlidonias niger* in total were seen at more than 30 localities during 4th-7th, exactly a month after the enormous passage of early May (*Brit. Birds*, 63: 224); the peak was again very brief and after 8th the only

reports were of up to three birds. Rare terns were represented by a **Whiskered Tern** *C. hybrida*, the seventh for the year, near Cresswell on 7th and 8th, and a **Caspian Tern** *Hydroprogne tsebegrava* at Attenborough (Nottinghamshire) on 8th: note the coincidence of dates with the Black Tern passage. Two more **Whiskered Terns** were seen: at Blithfield Reservoir (Staffordshire) on 21st and at Frodsham (Cheshire) on 28th.

#### NEAR-PASSERINES AND PASSERINES

For the fourth successive year a pair of **Snowy Owls** *Nyctea scandiaca* bred successfully on Fetlar (Shetland): five eggs were laid, the first on 9th May, and all had hatched by 19th June but unfortunately only two young survived. Still in Shetland, the only migrant **Wrynecks** *Jynx torquilla* reported in June were on Fair Isle on 2nd and 10th. Turning to southern species, there were at least five **Rollers** *Coracias garrulus*: at Oulton Broad, Lowestoft (Suffolk) on 1st, Tal-y-Bont (Cardiganshire) on 7th, Milverton (Somerset) from 11th until 3rd July, Chobham Common (Surrey) from 17th to 20th and Weir Wood Reservoir (Sussex) from 29th to 5th July. These, together with the one in Norfolk in May (*Brit. Birds*, 63: 264), made an unusually high spring total, so perhaps it was surprising that only two June **Hoopoes** *Upupa epops* came to our notice—in Richmond Park (Surrey) on 7th and Crowcombe Park (Somerset) on 14th. **Golden Orioles** *Oriolus oriolus* occurred at Fair Isle, Spurn, Fairburn, Cley, Minsmere and in east Kent, and another southern visitor reported from Kent was a **Great Spotted Cuckoo** *Clamator glandarius* at Murston, near Sittingbourne. The year's third **Red-rumped Swallow** *Hirundo daurica* was identified at St George's Wharf on the River Avon (Somerset) on 7th. A **Short-toed Lark** *Calandrella cinerea* appeared on Skokholm (Pembrokeshire) on 1st and another was trapped at Spurn on 13th, staying until 16th; the latter, however, was of one of the grey eastern races. A **Nightjar** *Caprimulgus europaeus* on 1st was another unexpected bird at Spurn, and on Fair Isle there was a **Great Reed Warbler** *Acrocephalus arundinaceus* from 12th to 14th and a **Nightingale** *Luscinia megarhynchos* from 21st to 26th. Another **Great Reed Warbler** was seen at Kilconquhar Loch (Fife) on 17th. Lastly, **Marsh Warblers** *A. palustris* occurred away from their breeding areas on Fair Isle (three) and at Spurn and Beachy Head.

Reports of Scandinavian thrushes south of the Scottish border included **Fieldfares** *Turdus pilaris* in Northumberland and Lincolnshire and on the Calf of Man, and **Redwings** *T. iliacus* in Northumberland and Kent. **Bluethroats** *Luscinia svecica* occurred on Fair Isle on 3rd, 6th and 21st and **Icterine Warblers** *Hippolais icterina* at Spurn on 10th and from 21st to 23rd; another was trapped at Norton Place (Lincolnshire) on 20th. A male **Rock Thrush** *Monticola saxatilis* was trapped on Fair Isle on 30th; it seems surprising that only nine previous records of this species, which breeds as near as central France, have been accepted, including, incidentally, one on St Kilda on 17th June 1962.

An unusual summer record of a **Red-breasted Flycatcher** *Ficedula parva* concerned a male singing at Pitstone Hill, near Tring (Hertfordshire), on 5th; while equally unusual was a male **Scarlet Rosefinch** *Carpodacus erythrinus* singing near Beamish Hall (Co. Durham) on 30th. **Tawny Pipits** *Anthus campestris* were present at Spurn on 6th, on Fair Isle from 8th to 10th, and on Whalsay (Shetland) on 10th and 11th, and a **Grey-headed Wagtail** *Motacilla flava thumbergi* was identified at Pagham (Sussex) in early June. These species appeared at about the same time as three species of shrikes: **Woodchat Shrikes** *Lanius senator* on Bardsey on 4th, near St David's (Pembrokeshire) on 6th, at Oxshott (Surrey) on 8th and on the Berkshire/Hampshire border in late June; a **Lesser Grey Shrike** *L. minor* trapped at Spurn on 11th and present to 13th; and at least ten migrant **Red-backed Shrikes** *L. collurio* in Shetland, as well as singles at Donna Nook on 8th and Spurn on 10th and 13th. Finally, a male **Snow Bunting** *Plectrophenax nivalis* was present on Fetlar from 1st to 11th and a **Brambling** *Fringilla montifringilla* was seen there on 26th.

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**Scarce migrants in Britain and Ireland during 1958-67**

**Part 4 Bluethroat and Ortolan Bunting**

**J. T. R. Sharrock**

**New Palearctic bird sound recordings during 1969**

**Jeffery Boswall**

**Studies of less familiar birds 161 Booted Eagle**

**R. F. Porter, Pierre Petit, M. D. England and A. N. H. Peach**

**Notes**

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**Letters**

**News and comment**

**Recent reports**



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# *British Birds*

## Scarce migrants in Britain and Ireland during 1958-67

J. T. R. Sharrock

### Part 4 Bluethroat and Ortolan Bunting

Nine species scarce as migrants to Britain and Ireland have already been considered in earlier parts of this series (*Brit. Birds*, 62: 169-189; 62: 300-315; 63: 6-23). This fourth paper deals with two more species, both of which are fairly widespread in Europe, with breeding ranges extending from Scandinavia to Iberia—Bluethroat *Luscinia svecica* and Ortolan Bunting *Emberiza hortulana*. The former is of particular interest, for the breeding males can be subspecifically identified in the field, with a Scandinavian red-spotted race *L. s. svecica* and a central and southern European white-spotted race *L. s. cyanecula* (fig. 54).

It is important to remember that the general introduction to this series (*Brit. Birds*, 62: 169-174) drew attention to many sources of bias.

### Bluethroat *Luscinia svecica*

A total of at least 600 Bluethroats was recorded in Britain and Ireland during the ten years and, although this is less than half the number of Hoopoes *Upupa epops*, it is thus the second most common species dealt with in this series. In fact, 600 is likely to be something of an underestimate for this skulking bird. For instance, the county and regional reports documented about 122 individuals in the entire autumn of 1965, yet Davis (1966) considered that probably not many fewer than 280 were involved in the great immigration of early September 1965.

The sex and/or age of relatively few of the 600 individuals were published, but included 67 adults, 50 immatures, 102 males and 39 females. Further, only 99 of the 600 birds were subspecifically identified, with 66 as *svecica* and 33 as *cyanecula*. This proportion of 2:1 is probably an underestimate, however, since *cyanecula* is regarded as a rarity and



every one identified is likely to be mentioned in detail in a local report, whereas *svecica* is generally recognised as regular and those identified may not, unfortunately, always be specified as such. (*The Handbook* regarded *svecica* as a regular autumn passage migrant, but gave only eleven records of *cyaneacula* which are now acceptable, following the investigations of Nicholson and Ferguson-Lees 1962.)



Fig. 54. European distribution of Bluethroat *Luscinia svecica* with the breeding range of this summer visitor shown in black (reproduced, by permission, from the 1966 edition of the *Field Guide*)

Four-fifths of the records were in autumn, from mid-August to mid-November, with a peak in early September (fig. 55); and almost one-fifth were in spring, from mid-March to mid-June, with two peaks, one in late March and the other in late May. Outside these periods, there were single observations in January (Kent in 1960) and late June (Shetland in 1965). The records of each race were almost equally divided between spring and autumn. In spring, however, 16 of the 18 *cyaneacula*, but only one of the 34 *svecica*, came before 23rd April. There was no such distinction in the autumn data. In spring, when

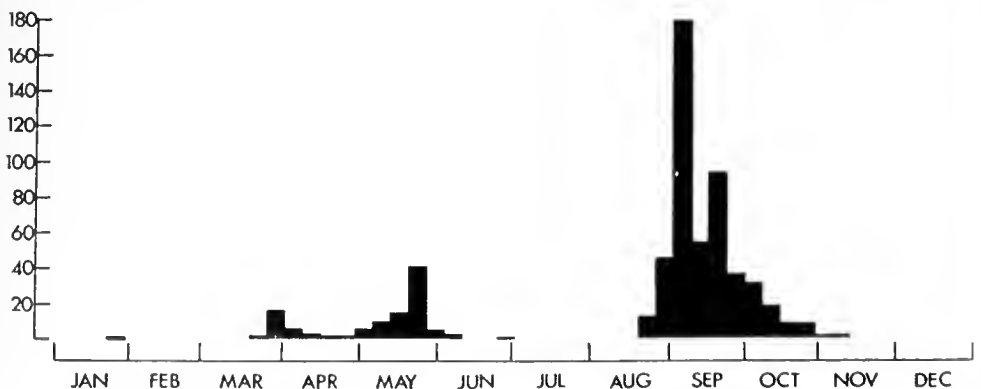


Fig. 55. Seasonal pattern of Bluethroats *Luscinia svecica* in Britain and Ireland during 1958-67

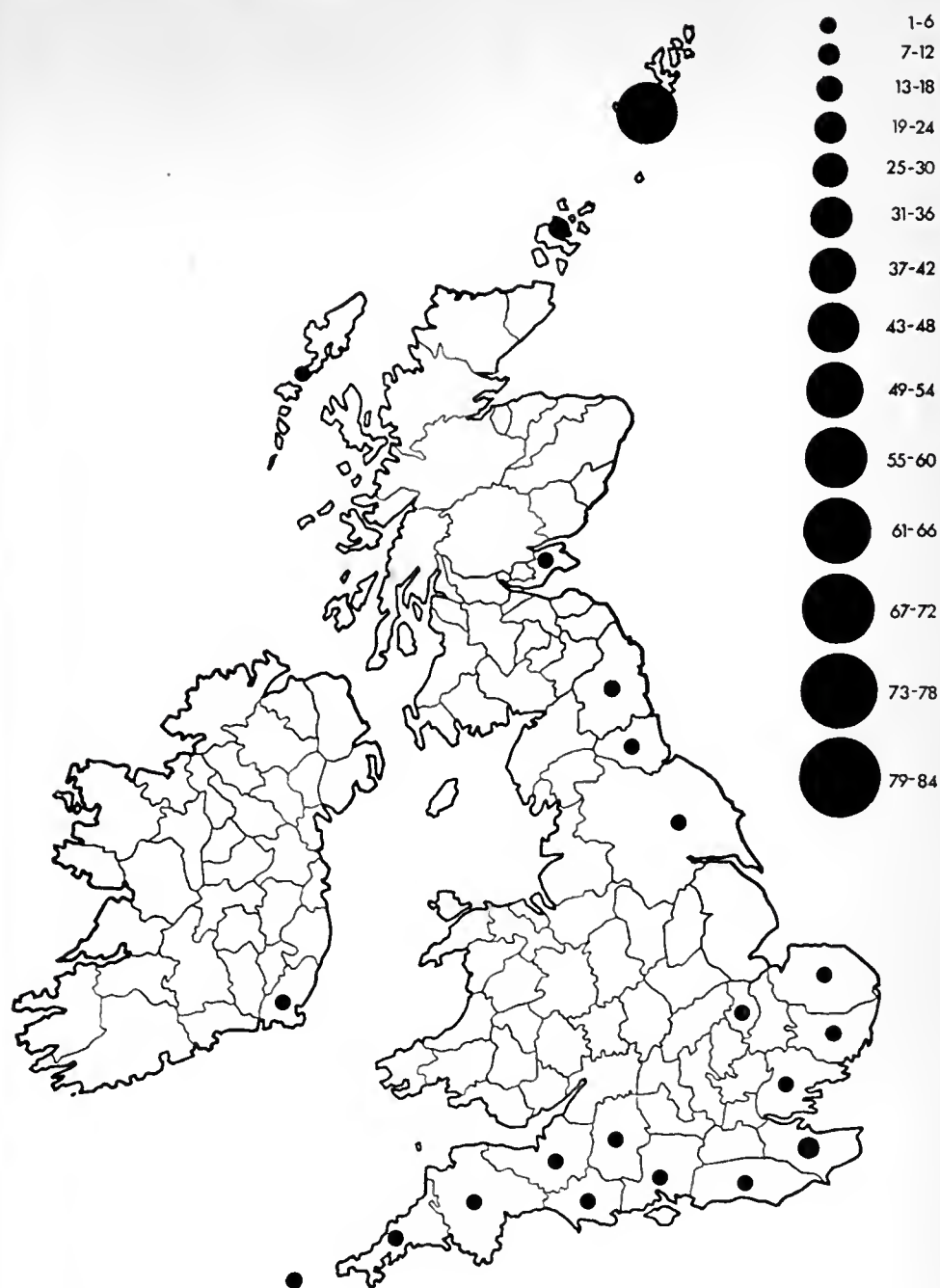


Fig. 56. Distribution by counties of spring Bluethroats *Luscinia svecica* in Britain and Ireland during 1958-67

sexing is usually (but not always) easy, there were 48 males, 30 females and 34 unsexed. In autumn, when birds other than adult males with remains of summer plumage are usually unsexable, there were 54 males, nine females and 423 unsexed.

More than half of the spring Bluethroats (57 out of 112) were recorded in Shetland, with small numbers in most of the English south

Table 5. Geographical distribution of spring Bluethroats *Luscinia svecica* in Britain and Ireland during 1958-67

	All records	White-spotted <i>L. s. cyanecula</i>	Red-spotted <i>L. s. svecica</i>
South-west England	8	3	1
South-east England	16	6	1
East Anglia	4	2	2
Midlands	1	1	0
Eastern England	6	2	0
North-west England	0	0	0
North-east England	6	1	3
Wales	0	0	0
South of Ireland	1	0	0
North of Ireland	0	0	0
Southern Scotland	6	0	3
Northern Scotland	64	3	24

and east coast counties (fig. 56). The two races were unequally divided, however, with half of the *cyanecula* on the English south coast and nearly four-fifths of the *svecica* in Scotland (table 5).

The distribution of autumn records differed considerably from that in spring. Although substantial numbers again occurred in Shetland, these made up less than a fifth of the total (compared with over half in the spring) and there was a much more even spread on the English east and south coasts (fig. 57). The proportion in Suffolk was greatly influenced by the numbers occurring in the great immigration of 1965 (Davis 1966). The Bluethroat was not added to the Irish list until 1954, but even so the very low number recorded in Ireland, Wales and north-west England (only 15 in the ten years) is remarkable. The racial distribution was similar to that in the spring, with most of the *cyanecula* (twelve out of 14) on the south coast of England and four-fifths of the *svecica* (26 out of 32) in eastern England or northern Scotland (table 6).

The numbers of Bluethroats recorded each year varied from five to 25 in spring and from 19 to at least 122 in autumn (fig. 58). As would be expected, the peak years for the two races did not coincide. In spring, half of the *cyanecula* occurred in 1958 and over half of the *svecica* in 1959 and 1960. Of the nine *cyanecula* in spring 1958, seven were recorded during the 14-day period from 19th March to 1st April, in Scilly, Hampshire, Sussex, Essex, Northumberland and Orkney, and this attracted attention at the time (Ferguson-Lees 1958). The proportion of autumn birds subspecifically identified is so small that conclusions cannot be drawn.

It is clear that Bluethroats are vagrants to Britain in spring. To a varying extent each year, small numbers of the south and central European white-spotted race *cyanecula* may overshoot on spring

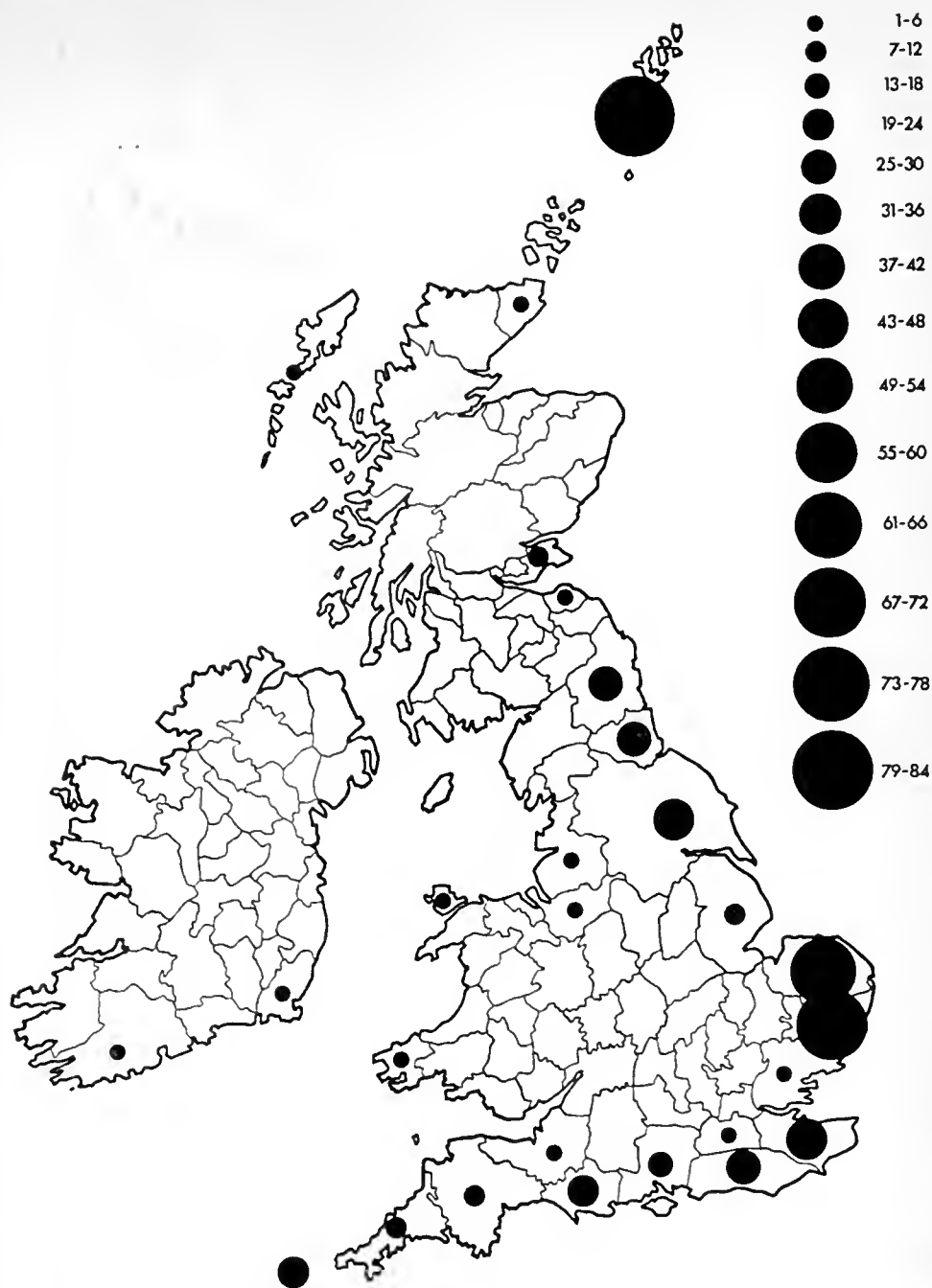


Fig. 57. Distribution by counties of autumn Bluethroats *Luscinia svecica* in Britain and Ireland during 1958-67

migration and occur, mainly on the English south coast, in late March or early April. Similarly, there is a rather greater likelihood of small numbers of the Scandinavian red-spotted race *svecica* overshooting and occurring, chiefly on the north Scottish islands, in late May.

Although the average number of Bluethroats recorded per autumn is only 49 (or 41 if the exceptional 1965 records are excluded), this is



**Table 6. Geographical distribution of autumn Bluethroats *Luscinia svecica* in Britain and Ireland during 1958-67**

	All records	White-spotted <i>L. s. cyanecula</i>	Red-spotted <i>L. s. svecica</i>
South-west England	60	4	1
South-east England	79	8	2
East Anglia	139	0	0
Midlands	0	0	0
Eastern England	42	1	10
North-west England	2	0	0
North-east England	59	0	0
Wales	6	0	1
South of Ireland	6	0	0
North of Ireland	0	0	0
Southern Scotland	10	1	2
Northern Scotland	84	0	16

sufficient to justify their being regarded as regular migrants rather than vagrants. Lack (1960) showed that Bluethroats (unlike Red-breasted Flycatchers *Ficedula parva*, Barred Warblers *Sylvia nisoria* and Icterine Warblers *Hippolais icterina*) occurred on the east coast coincidentally with big arrivals of Continental migrants. It seems reasonable to assume that the westernmost SSW-oriented *svecica* regularly pass over or close to the English east coast in autumn (*cf.* Evans 1968) and that a varying proportion are grounded each year. The smaller number of *cyanecula* recorded mainly on the south coast at the same time pose a similar problem to south European species which occur north of their breeding ranges in autumn (e.g. Melodious Warblers *H. polyglotta* in Ireland and Wales). The situation is not identical, however, for the Bluethroats probably include a higher proportion of adults (otherwise it would not be known that they were *cyanecula*) and the European breeding distribution is such that relatively little westerly displacement is necessary to explain vagrancy of *cyanecula* on the English south coast in autumn.

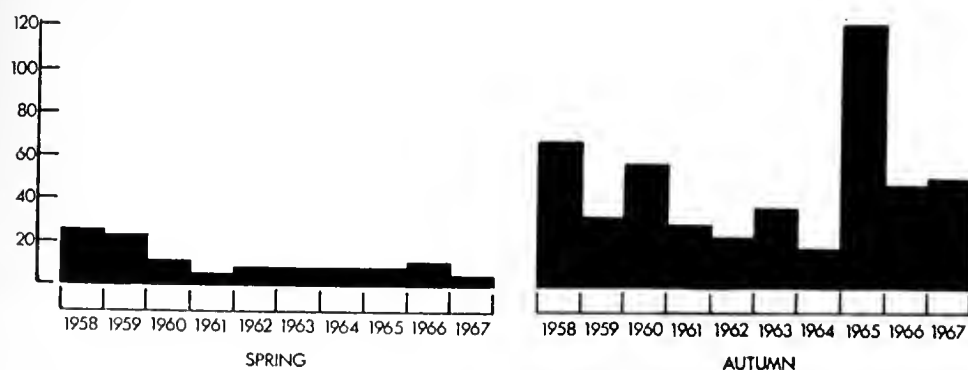


Fig. 58. Annual pattern of Bluethroats *Luscinia svecica* in Britain and Ireland during 1958-67 with the spring and autumn records shown separately

Outside the period under review, the first known case of breeding of Bluethroats in Britain was established in Scotland in 1968 (Greenwood 1968).

### Ortolan Bunting *Emberiza hortulana*

A total of 335 Ortolan Buntings was recorded in Britain and Ireland in the ten years. Published data on ages and sexes included 35 adults, 35 immatures, 46 males and 15 females. Many of the 265 not aged will probably have been immatures (adults, being noteworthy, are more likely to be mentioned in county reports), though others will have been birds heard but not seen closely. I consider the sex data to be very unreliable (unsexed adults not infrequently being called adult males).

About 15% of the records were from mid-April to June and 85% from mid-August to mid-November. Even when records for the ten years are combined (which tends to mask sharp peaks), the spring and autumn peaks were both very distinct, during 7th-13th May and 3rd-9th September (fig. 59).

The European breeding distribution of the Ortolan Bunting (fig. 60) is similar to that of the Bluethroat (fig. 54), though it extends further south into the Mediterranean countries. While the species is common in the south and also in Fenno-Scandia, it is, as noted by Nisbet (1957), less numerous in the intervening area. The pattern of spring vagrancy (fig. 61), with three-fifths of the records in Shetland, is very similar to that of the Bluethroat (fig. 56). The relative absence of records from the English south coast suggests that spring vagrancy results almost entirely from the overshooting of the Fenno-Scandian

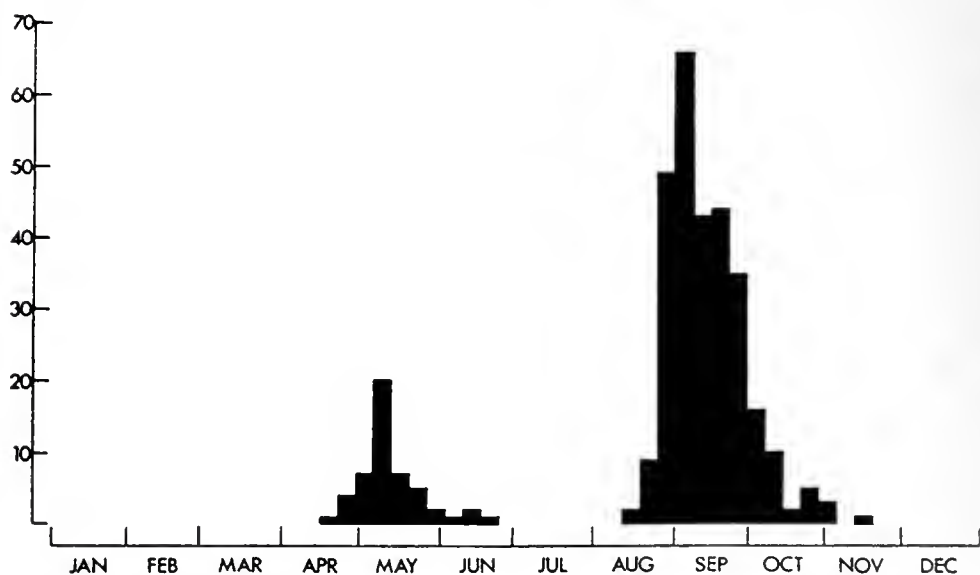


Fig. 59. Seasonal pattern of Ortolan Buntings *Emberiza hortulana* in Britain and Ireland during 1958-67

population. A notable example of this occurred outside the period under review, when 32 were seen on Fair Isle, Shetland, on 3rd May 1969 and the associated species, including 45 Wrynecks *Jynx torquilla*, 300 Ring Ouzels *Turdus torquatus* and 500 Bramblings *Fringilla montifringilla* (see Dennis 1970), clearly indicated the origin of the arrival.

There was not a great deal of difference in the timing of the spring movements from one region to another, but all of the six English south coast records and a third of the nine East Anglian ones were before 7th May, whereas nine-tenths of the 31 in Scotland were after 6th May. This is a similar pattern to that shown for several of the scarce migrants already dealt with in this series (e.g. Hoopoe) and is what one would expect to find.



Fig. 60. European distribution of Ortolan Bunting *Emberiza hortulana* with the breeding range of this summer visitor shown in black (reproduced, by permission, from the 1966 edition of the *Field Guide*)

The distribution of autumn records (fig. 62) was, like that of the Bluethroats, more widespread than in spring. In the ten years as many were recorded in Norfolk as in Shetland and these two counties with Scilly, Devon, Dorset, Pembrokeshire and Co. Cork accounted for almost 70% of the total. It is noteworthy that half of the autumn records were in western Britain and Ireland, compared with only 14% of those in spring. Before the period under review, the largest recorded influx of Ortolan Buntings occurred on the Isles of Scilly where at least 100 were seen on 25th September 1956.

As with several of the species already considered in this series, the autumn records in south-western Britain and Ireland were substantially later than those in eastern Britain (fig. 63). The first in mid-August were mainly in the Northern Isles, but by the end of the month there were substantial arrivals in East Anglia. Northern Scotland, East Anglia and south-west England all featured almost equally in early September, but from 10th September onwards there were

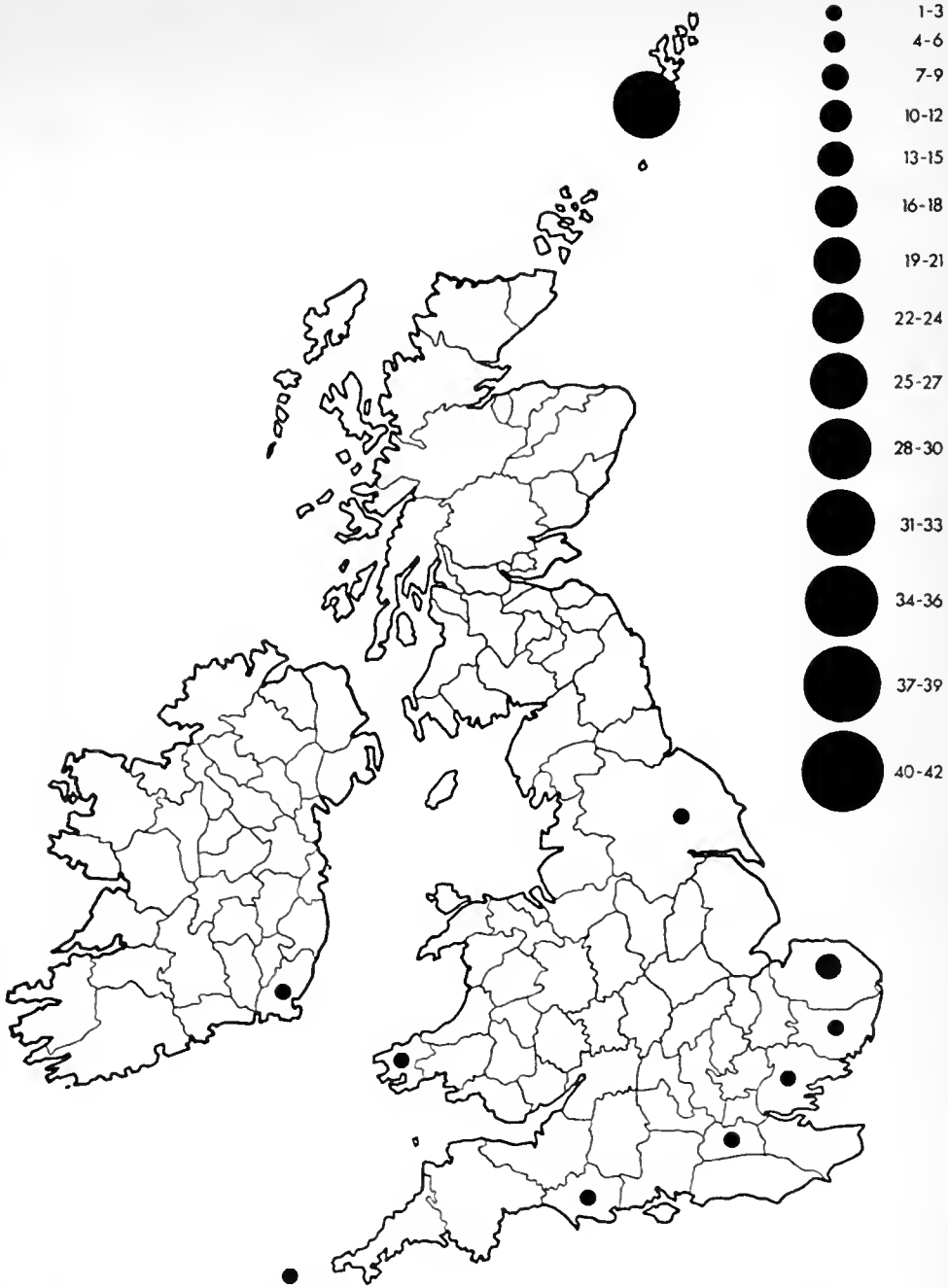


Fig. 61. Distribution by counties of spring Ortolan Buntings *Emberiza hortulana* in Britain and Ireland during 1958-67

always more in south or south-western areas than on the British east coast.

The numbers recorded annually in the ten years varied from one to ten in spring and from 19 to 43 in autumn (fig. 64). Of the ten in spring 1967, nine were during 7th-13th May, eight of them in Shetland, but this influx paled into insignificance by comparison with that in



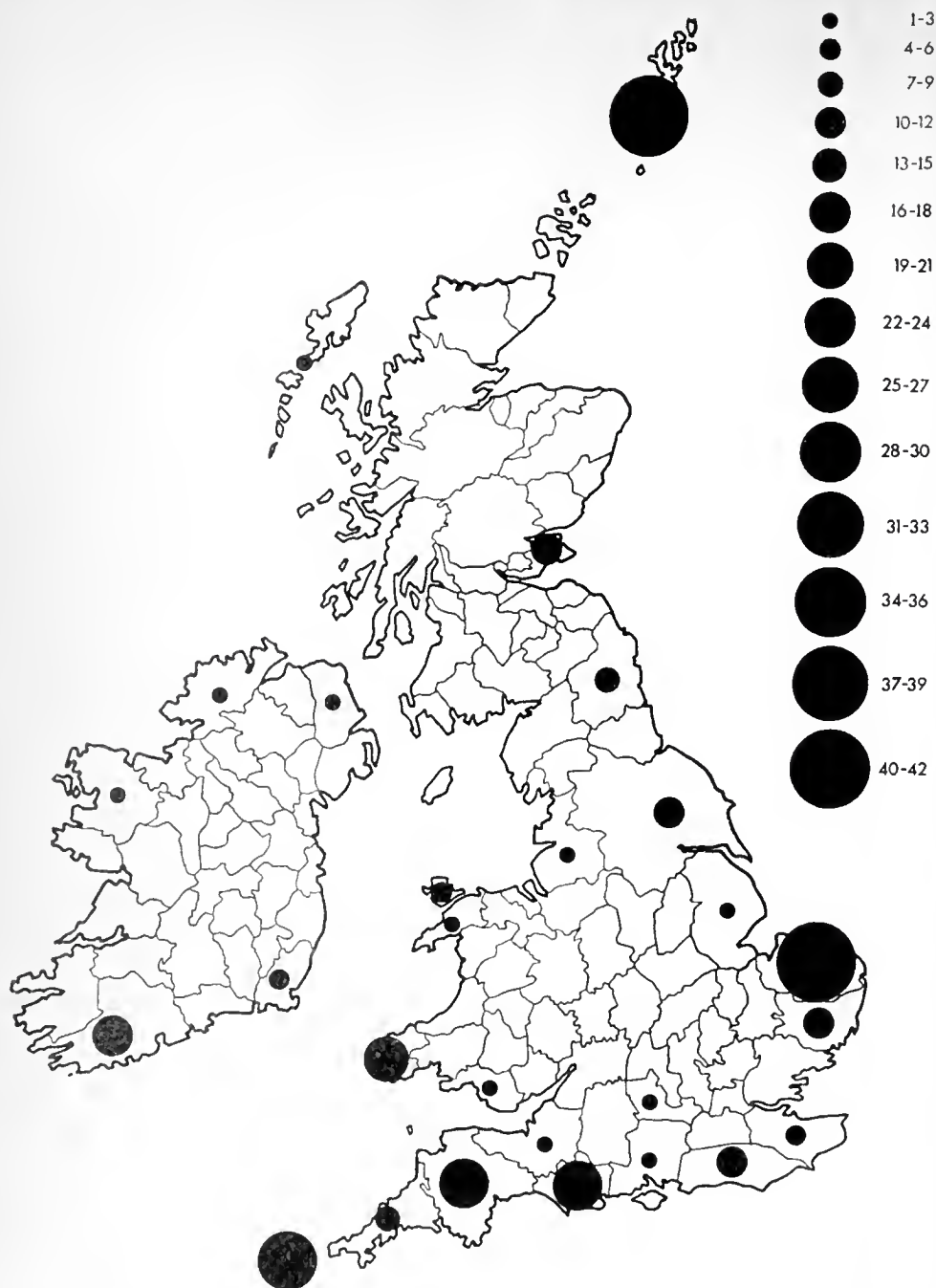


Fig. 62. Distribution by counties of autumn Ortolan Buntings *Emberiza hortulana* in Britain and Ireland during 1958-67

1969, already mentioned. The peak autumn numbers in 1965 coincided with those of Bluethroat and several other species, associated with the great immigration in early September (Davis 1966), but only eight of the 43 in that autumn were in East Anglia (compared with at least 81 of the 122 or more Bluethroats), so there was no direct meteorological connection. Williamson (1959) noted some 40-50 Ortolan

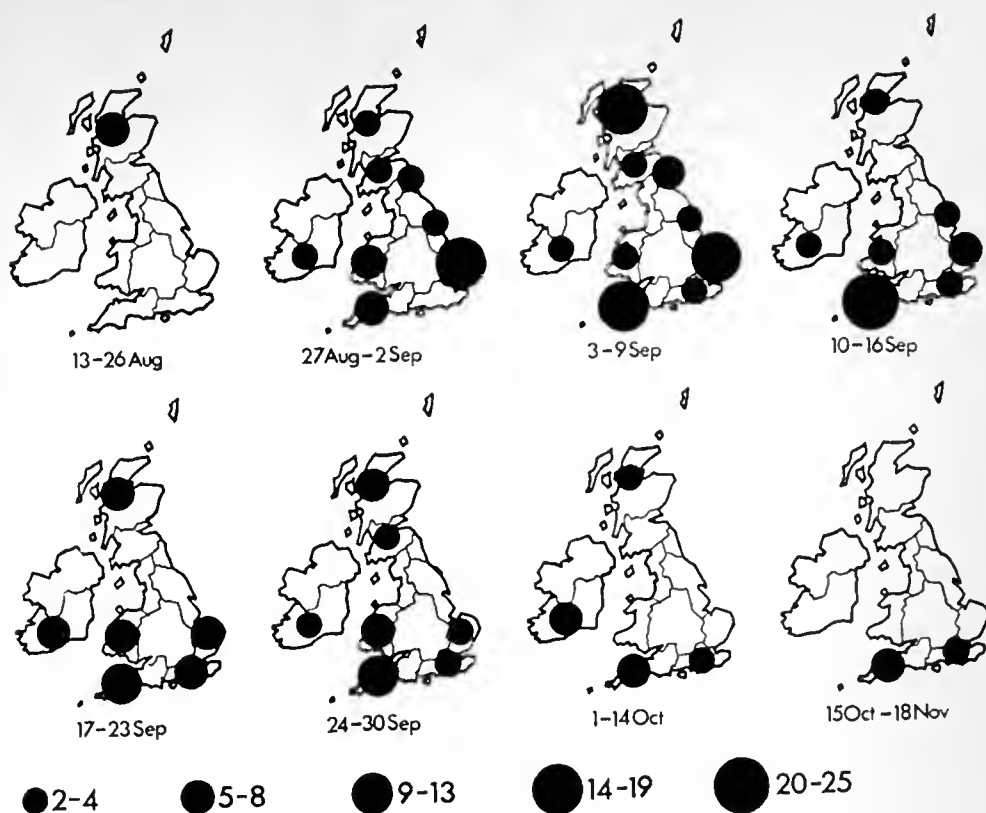


Fig. 63. Regional distribution in eight periods of autumn Ortolan Buntings *Emberiza hortulana* in Britain and Ireland during 1958-67

Buntings in the September 'drift-movements' of 1956 and these, together with the 100 on one date in the Isles of Scilly, already mentioned, must make 1956 the peak year for the species' occurrence in Britain and Ireland.

It has at times been suggested (e.g. Lack 1961) that some of the vagrants and other scarce species in western Britain and Ireland in autumn may be migrants grounded after diversion from a southerly or SSW course from Scandinavia to Iberia across Britain. Several

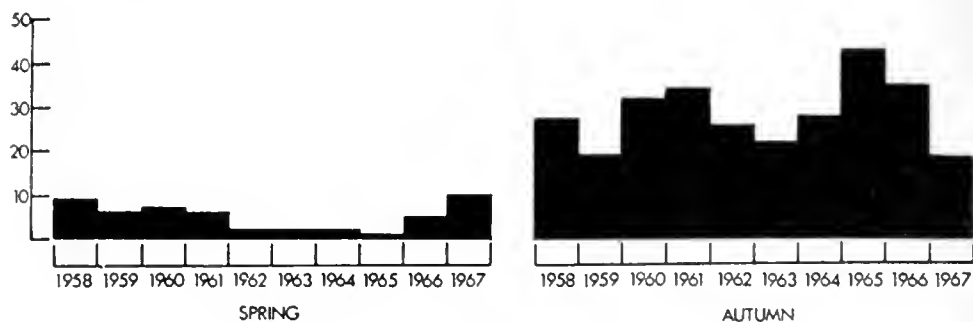


Fig. 64. Annual pattern of Ortolan Buntings *Emberiza hortulana* in Britain and Ireland during 1958-67 with the spring and autumn records shown separately

features, however, seem to make this unlikely and the Ortolan Bunting picture is an example. Many species, Ortolan Bunting included, reach their peak a week or fortnight later in south-western Britain and Ireland than on the east coast. If the western birds resulted from grounded migrants overflying on a southerly course, one would expect a discrepancy of only a day or so, which would not appear in such crude analyses as these based on seven-day periods. Thus the records are consistently at variance with this hypothesis. Alternatively, it might be suggested that birds displaced from this stream, to northern Scotland, continue on a more westerly route southwards and result in the occurrences in western Britain and Ireland. Apart from meteorological objections, however, it must be noted that where Fenno-Scandian birds only are involved (e.g. Red-spotted Bluethroats) they are excessively scarce in western Britain and Ireland in autumn, suggesting that this situation does not appertain either. On the other hand, birds labelled as being of southern European origin (e.g. Melodious Warbler) are shown to occur in these western districts with regularity. Were it not for their labelling, they might well be attributed to Fenno-Scandian origin. It seems logical to assume that most of the Ortolan Buntings recorded in western Britain and Ireland in autumn (as many as on the east coast) similarly arrive from the south and either are derived from southern populations or are Scandinavian birds which have previously moved southwards through Continental Europe.

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## New Palearctic bird sound recordings during 1969

*Jeffery Boswall*

Eleven discs or sets of discs were published in 1969 or first came to my notice during that year. They are dealt with in this fifth paper in the series (see also Boswall 1964, 1966, 1969a, 1969b). For the first time some of the reviews have been undertaken by other people, whose names appear appropriately. Particular attention may be drawn to C. Graul and Dr A. König's record of owls (124); to the remarkable assembly by Dr Claude Chappuis of calls of diurnal birds of prey (127); and to the re-issue of *Witberby's Sound-Guide to British Birds* by Myles North and Eric Simms (132).

It seems worth drawing attention to the fact that the first two parts of a French discography appeared during the year (Parent 1969).

#### EUROPEAN SPECIES

Of the 17 regular European nesting species unrecorded in Europe up to the time of the last paper, five more have since been taped: Mlle Jacqueline Wagner recorded a captive Griffon Vulture *Gyps fulvus* in France; Dr Claude Chappuis taped Masked Shrike *Lanius nubicus* in Greece and both Red-footed Falcon *Falco vespertinus* and Great Bustard *Otis tarda* in Hungary; and Jacques Vielliard recorded Slender-billed Gull *Larus genei* in Romania. The twelve species now remaining are: White-headed Duck *Oxyura leucocephala*, Black Vulture *Aegypius monachus*, Lammergeier *Gypaetus barbatus*, Levant Sparrowhawk *Accipiter brevipes*, Pallid Harrier *Circus macrourus*, Lanner *Falco biarmicus*, Chukar *Alectoris chukar*, Andalusian Hemipode *Turnix sylvatica*, Black-winged Pratincole *Glareola nordmanni*, Black-bellied Sandgrouse *Pterocles orientalis*, Rose-coloured Starling *Sturnus roseus* and Arctic Redpoll *Acanthis hornemanni*.

#### CORRECTION

Sture Palmér tells me that recording B(5) on RFEP 233 in 34 attributed to the Little Bittern *Ixobrychus minutus* is in fact a Fire-bellied Toad *Bombina bombina*.

#### FURTHER ADDITIONS TO THE DISCOGRAPHY

121. TESSON, ANDRE. About 1965. *La Vie des Bêtes: 5, Oiseaux de Mer* and 6, *Oiseaux de Montagne*. Two 7-inch 45 rpm, LVB 5 and 6. *La Vie des Bêtes*, 49 Avenue d'Orena, Paris.

Among 14 seabirds is the rarely recorded Cory's Shearwater *Calonectris diomedea*, and among 17 mountain species Rock Thrush *Monticola saxatilis*, Blue Rock Thrush *M. solitarius*, Snow Finch *Montifringilla nivalis* and Alpine Accentor *Prunella collaris* are rarely on discs.

122. ALBOUZE, GEORGES. About 1965. *Gibiers d'Eau: Ces Oiseaux qui Disparaissent*. One 12-inch 33.3 rpm, VS623. Productions Disques Ades, 141 Rue La Payette, Paris 10.

According to the sleeve, this disc aims to let us hear 'the typical and distinctive songs or cries of the birds so as to ensure accurate and easy identification even for the layman'. But to anyone who knows the species concerned in the field it is at once clear that many of the vocalisations are not well selected, and indeed the circumstances in which the recordings were made give rise to considerable doubt.

On side 1 the Grey Lag Goose *Anser anser* and the White-fronted Goose *A. albifrons* emit a series of sharp cries (the sharpest of which reminds one of a Barnacle Goose *Branta leucopsis*) which have no



connection with what the layman could hear in, say, France in winter or spring. Uncertainty is further increased by the presence of identical backgrounds for several different species. The Reed Warbler *Acrocephalus scirpaceus* sings behind the White-fronted Goose, Canada Goose *Branta canadensis*, Teal *Anas crecca*, Garganey *A. querquedula* and Lapwing *Vanellus vanellus*; and a flock of terns *Sterna spp* call behind Pink-footed Goose *Anser fabalis brachyrhynchus*, Snow Goose *A. caerulescens*, Emperor Goose *A. canagicus* and Brent Goose *Branta bernicla*. It seems likely that either a separately recorded background was subsequently 'dubbed' in; or, more likely, that at least some of the recordings are of captive birds. On the other hand, the following seven recordings are quite typical of the species that they concern: Shelduck *Tadorna tadorna*, Ruddy Shelduck *T. ferruginea*, drake Teal, drake Garganey, drake Gadwall *Anas strepera*, drake Wigeon *A. penelope* and drake Red-crested Pochard *Netta rufina*. The cry of the Water Rail *Rallus aquaticus* is characteristic, but identically repeated with intervals of silence that are unnaturally short. The Little Crake *Porzana parva* emits only a few of the typical intermediary notes between each decrescendo song.

On side 2 the first four species have quite abnormal vocalisations. What unhappy chance has made the Corncrake *Crex crex* give vent to regularly spaced notes when in nature it always groups them in pairs? The Ringed Plover *Charadrius hiaticula* does not in nature emit its cry with the frequency and regularity of a concentric groove. On the other hand, the Little Ringed Plover *C. dubius* is very good, on the alert near its eggs; and the Grey Plover *Pluvialis squatarola*, Golden Plover *P. apricaria*, Dotterel *Eudromias morinellus*, Snipe *Gallinago gallinago*, Woodcock *Scolopax rusticola*, Curlew *Numenius arquata* and Whimbrel *N. phaeopus* are well reproduced. The Black-tailed Godwit *Limosa limosa*, however, is astonishingly feeble for so noisy a bird; the recordings of the Bar-tailed Godwit *L. lapponica*, Wood Sandpiper *Tringa glareola* and Black-winged Stilt *Himantopus himantopus* are completely useless as a means of recognising these species by ear; and, finally, the Spotted Redshank *Tringa erythropus* is not giving its song as stated, but its usual flight-call.

As to technical quality, the majority of the sounds often appear to be distorted, particularly in the middle register, and the entries, moreover, lack sharpness. This record may perhaps interest the specialist but would seem to have little value for the layman who could barely hope to recognise more than 25 birds out of the 52 species it presents.

CLAUDE CHAPPUIS

123. CHAPPUIS, CLAUDE. 1967. *Oiseaux de France: Les Seigneurs du Ciel and Chasseurs ailes Precieux Rapaces*. Two 7-inch 33.3 rpm. Obtainable from Dr C. Chappuis, 2 rue Walter, 76 Rouen, France.

Dr Chappuis is to be congratulated on bringing together the 'vanishing voices' of no less than twenty-five of the European birds of prey. On the whole, raptors are not very vocal and, even when they are, they are difficult to capture on tape. These are thus exceptional and important discs. To the ornithologist who does not speak French, however, they are difficult to follow with the sleeve notes and the spoken commentary. The following precise guide was worked out with the aid of Dr Chappuis himself (all recordings are of wild birds, made in France by Dr Chappuis, unless otherwise indicated):

DISC 1 SIDE A 'Eagles and a vulture'

Booted Eagle *Hieraetus pennatus*: (00'33") perched adult; (0'20") Song Thrush *Turdus philomelos* mimicking Booted Eagle; (01'51") eagle in flight (J. C. Alberny); (02'09") calls before display (J. C. Alberny); (02'31") display (Morocco); (02'44") perched pair (J. C. Alberny); (03'12") young perched round nest. Short-toed Eagle *Circaetus gallicus*: (04'01") display; (04'20") cicadas; (04'29") male; (04'55") young. Bonelli's Eagle *Hieraetus fasciatus*: (05'16") anxious adult near eyrie (Morocco); (05'39") captive young bird (Mlle J. Wagner). Golden Eagle *Aquila chrysaetos*: (06'22") adult with Chough *Pyrrhocorax pyrrhocorax* in background; (06'45") young. Griffon Vulture *Gyps fulvus*: (07'06" and 07'31") captive birds squabbling (Mlle J. Wagner). Spotted Eagle *Aquila clanga*: (07'50") captive bird.

DISC 1 SIDE B 'Birds of prey of pools and marshes'

(00'00") General bird chorus plus amphibian. Hen Harrier *Circus cyaneus*: (00'49") female alarm; (00'59") female then male alarm; (01'17") male alarm (Mlle J. Wagner); (01'37") male display flight. Marsh Harrier *Circus aeruginosus*: (02'22") display cries of male and female; (03'03") male alarm near nest. Montagu's Harrier *Circus pygargus*: (03'32") male display cries; (04'20") female 'whistling'; (04'38") anxious bird near nest. Black Kite *Milvus migrans*: (05'04") general bird chorus. Red Kite *Milvus milvus*: (06'23") adult in flight round nest; (06'54") display (Morocco). Osprey *Pandion haliaetus*: (06'54") anxiety calls above eyrie

(Morocco). White-tailed Eagle *Haliaeetus albicilla*: captive bird.

DISC 2 SIDE A 'Falcons'

Peregrine *Falco peregrinus*: (00'17") male perched; (00'15") anxious female; (01'46") adults' calls in evening at the eyrie; (02'03") young bird. (02'25" and 02'34") Pond chorus. Hobby *Falco subbuteo*: (02'59") display of male; (03'24") anxious adult near nest. Kestrel *Falco tinnunculus*: (03'56") female in flight near nest; (04'21") adult perched near nest; (04'55") female calling male (Austria); (05'16") young birds. Lesser Kestrel *Falco naumanni*: (05'52") calls of birds flying round colony (Spain). Merlin *Falco columbarius*: (06'46") alarm of female (Iceland, J.-P. Varin). Gyr *Falco rusticolus*: (07'10" and 07'15") calls of captive bird.

DISC 2 SIDE B 'Woodland birds of prey'

Buzzard *Buteo buteo*: (00'25") adult in flight; (00'59") anxious pair near nest; (01'16" and 01'37") Jay *Garrulus glandarius* mimicking Buzzard; (01'54" and 02'02") young in flight. Honey Buzzard *Pernis apivorus*: (02'24" and 02'35") adults in flight. Goshawk *Accipiter gentilis*: (03'03" and 03'10") calls of adult; (03'18") young flying round nest; (03'50" and 03'57") bird in flight. Sparrowhawk *Accipiter nisus*: (04'49") anxious female flying round nest; (05'27") young hovering over nest; (05'50") young Golden Orioles *Oriolus oriolus* sounding like Sparrowhawks. Rough-legged Buzzard *Buteo lagopus*: (06'13") calls (Norway, J.-P. Varin). (06'52") Carrion Crows *Corvus corone* mobbing Goshawk.

**124.** GRAUL, A., and KÖNIG, C. 1969. *Europäische Eulen*. One 7-inch 45 rpm, Grau 681. A. Graul, 713 Mühlacker, Kisslingweg 44, West Germany.

This disc gives the calls of eight European owls. Neither the label nor the sleeve gives the species in the right order, only the German spoken words on the disc:

## SIDE 1

Pygmy Owl *Glaucidium passerinum*  
 Little Owl *Athene noctua*  
 Scops Owl *Otus scops*  
 Long-eared Owl *Asio otus*

## SIDE 2

Eagle Owl *Bubo bubo*  
 Tengmalm's Owl *Aegolius funereus*  
 Tawny Owl *Strix aluco*  
 Barn Owl *Tyto alba*

To achieve a complete vocabulary for any one species would be very difficult, but this record goes a little further than ordinary bird song records. Not only are the regular songs given, but also less frequently heard sounds. In the case of the Pygmy Owl, for example, the calls of male and female in six different situations are heard and the meaning of the sounds explained in German. The technical quality is not quite perfect, as is to be expected when the recordings include elements in the vocabularies which are difficult to obtain because they are not regularly repeated. Nevertheless, the listener is helped to identify a number of nocturnal birds of Central Europe. STEN WAHLSTRÖM

**125.** WAHLSTRÖM, STEN. 1969. *Birds of the Nordic Bogs* (Swedish). One 7-inch 45 rpm, SWP AB-3. Obtainable from Norrbottens Museum, Luleå, Sweden, or from S. Wahlström, Meteorvagen 11C, Skälby, Sweden.

A selection of 13 Lapland species including the rarely recorded ones on bands 1, 7, 9, 12 and 13 (see list below). All recordings by Sten Wahlström except bands 5 and 13 by I. Holmasen. A new and interesting technical feature of the disc is that the edited master tape, before being converted to a disc matrix, was re-recorded to compensate for the frequency response of the parabolic reflector. The 'canned' or 'tinny' effect that one often associates with recordings made with a parabola seems to have been lost, and a more faithful reproduction achieved. It is to be hoped that Mr Wahlström will publish the details of his method. His recent detailed paper on the reflector itself is worth attention (Wahlström 1968).

## SIDE 1

- (1) Whooper Swan *Cygnus cygnus*
- (2) Rough-legged Buzzard *Buteo lagopus*
- (3) Peregrine *Falco peregrinus*
- (4) Golden Plover *Pluvialis apricaria*
- (5) Greenshank *Tringa nebularia*
- (6) Whimbrel *Numenius phaeopus*
- (7) Great Snipe *Gallinago media*

## SIDE 2

- (8) Meadow Pipit *Anthus pratensis*
- (9) Red-throated Pipit *Anthus cervinus*
- (10) Bluethroat *Luscinia svecica*
- (11) Redwing *Turdus iliacus*
- (12) Little Bunting *Emberiza pusilla*
- (13) Lapland Bunting *Calcarius lapponicus*

126. WAHLSTRÖM, STEN. 1969. *Birds of Ottenby* (Swedish). One 7-inch 45 rpm, SWP AB-4. Obtainable from S. Wahlström, Meteorvägen 11c, Skälby, Sweden.

Seven species, mostly passerines, recorded at the Swedish bird observatory at Ottenby in the months of June 1967, 1968 and 1969, including the Barred Warbler *Sylvia nisoria* which has not often been taped.

127. CHAPPUIS, C. 1969. *Un cline vocal chez les oiseaux Palearctiques: variation tonale des vocalisations, sous différentes latitudes*. One 6-inch 33.3 rpm disc as adjunct to paper in *Alauda*, 37: 59-71.

It has become common practice nowadays for papers on bio-acoustic subjects to be illustrated with sound spectrograms, but the idea of incorporating a thin, flexible PVC disc to enable the reader to play over examples is a newer and most welcome facility. It is to be hoped that more journals will follow the example. Despite the flimsy nature of the disc, the quality of replay from both sides is excellent.

Dr Chappuis in recent years had increasingly gained the impression that birds tended to sing or call in a lower pitch in the south than in the north and uses the phrase '*cline vocal*' to describe this. He has now attempted to put this idea to the test by systematically tape-recording a number of species in France and Morocco, using identical equipment and comparing frequency/amplitude sections from spectrograms of similar kinds of call or song. He has avoided those species which are mainly migratory between France and Morocco and also those, such as the Scops Owl *Otus scops* and Raven *Corvus corax*, which are well known to have marked variations between individuals. The examples on the disc are of 13 species, all showing a marked deepening of voice in the more southerly latitude. Each is introduced verbally by scientific name and locality. The only one which fails to convince is the Great Tit *Parus major*, for which the two calls being compared are not of the same kind.

The 13 species on the disc and 13 others are also given individual treatment on frequency/amplitude diagrams in the paper. In most cases the difference in pitch seems to lie between 10% and 30%, but in the case of the Hawfinch *Coccothraustes coccothraustes* there is a remarkable drop in pitch of 67%, the fundamentals being around 6000 and 2000 Hz. To be confident about the validity of this means of comparison one must look more closely into the kind of frequency trace being used. The author takes trouble to explain that, for species having a simple call involving only one or two fairly pure tones, it is always possible to select an amplitude section from a spectrogram of like parts of the call as between French and a Moroccan example, e.g. in the middle of a steadily-held pitch. This point is important as it has to be remembered that an amplitude section from a spectrogram analyses a



very brief period of around one-thirtieth of a second. For the more complex songs, e.g. Wren *Troglodytes troglodytes*, it is impossible to be sure of working on the same part of the song and here Dr Chappuis uses a different method of presentation. He has produced a diagram which is effectively an envelope of the maximum intensities found in all the frequencies used in the course of a song phase.

Dr Chappuis investigated 40 different species and found 26 of them to show a marked drop in pitch with more southerly latitude. The other 14, half of them members of the lark family, demonstrated no change in pitch at all. In examining various possible explanations he infers from the fact that deeper tones tend to carry farther that these may have been evolved in the southern range due to the species having to maintain larger territories. But for many of the woodland species studied the territories held in the Mid-Atlas forests are comparable with those held in France. Only the larks have bigger territories in the south and they are the very family to evince no change in pitch. Dr Chappuis hopes that further recordings made elsewhere may throw fresh light on this interesting subject.

P. J. SELLAR

**128.** KOCH, LUDWIG, and HAWKINS, DESMOND. 1969. *Salute to Ludwig Koch and a selection of some of his finest recordings*. One 12-inch 33.3 rpm, RED 34M, BBC Wildlife Series no. 1. BBC Radio Enterprises.

On side 1, Desmond Hawkins links an account of Ludwig Koch's life. The other human contributors include James Fisher and Peter Scott. Among the birds are a captive Common or White-rumped Shama *Copsychus malabaricus*, the earliest known recording of any species, made in 1889; a Blackbird *Turdus merula* reputed to be mimicking the Kaiser Wilhelm II's motor horn; and an Icterine Warbler *Hippolais icterina* claimed to be mimicking the voice of Queen Elizabeth, Queen Mother of the Belgians, calling the recordist 'Ludwig, Ludwig'. Other recordings used to illustrate Ludwig Koch's life include a 1936 one of a Green Woodpecker *Picus viridis*, the famous Curlew *Numenius arquata* adopted as the signature call of 'The Naturalist' radio series, and a Great Northern Diver *Gavia immer* which was one of the few creatures Ludwig recorded on tape. One of the mammals that can be heard on this side has been omitted from the sleeve, as have the scientific names of all on side 1.

On side 2, 43 of Ludwig's recordings can be heard, 32 of them involving birds and most of them British or European. Scientific names, countries and dates are given. They are arranged in chronological order: the earliest is a Superb Glossy Starling *Spreo superbus* in Tanganyika, and the latest—taped in his 80th year—some young Swallows *Hirundo rustica* in Somerset. Some of Ludwig's recordings have never been superseded, partly because, as a result of his musical background and training, he knew a good singer when he heard one

and partly because of his incredible singlemindedness and patience.

**129.** LEWIS, VICTOR. 1969. *Bird Sounds in Close-up*. One 12-inch 33.3 rpm and leaflet, MAL 1102. Marble Arch, Pye Records (Sales) Ltd, A.T.V. House, Great Cumberland Place, London W1.

This unusual and worthwhile issue could be described as a sound montage. Four 'atmosphere' or habitat recordings are followed by the typical breeding species in 'close-up'. Forty species are featured (often more than one recording) and there are others in the background and still more in the habitat recordings during a total of 56 minutes' playing time. There is no spoken commentary, except near the end, and the listener is guided by a very comprehensive printed commentary which, incidentally, makes sense only if read while the disc is being played. All recordings are supposed to be separated by sound fade, but in some cases this is difficult to detect, though a signal is given at certain points so that the listener can find his place again if necessary.

The Hobby *Falco subbuteo* is incorrectly described as 'our only regular breeding falcon'. Near the end of side 2 Victor Lewis suddenly bursts into voice to introduce just three recordings—unnecessarily, I think. He pinpoints the species being mimicked by Sedge Warbler *Acrocephalus schoenobaenus* and Reed Warbler *A. scirpaceus*. This could have been covered quite easily in the printed commentary and thus kept the continuity of bird sound on the disc. One of the advantages of this disc is that it will stand playing over and over again without sounding repetitious, simply because the human voice is almost entirely absent. It certainly lives up to its title, but some of the bird sounds are obviously too close in cases where there is considerable distortion. Otherwise the recording quality is excellent, as we now expect from Victor Lewis.

ROBIN J. PRYTHERCH

**130.** CONDER, PETER, and FIELD, A. G. 1969. *Birds of Woods and Hedges*. Two 7-inch 33 rpm, RB60 1-2 and RB60 3-4, and book (56 pages). Nelson, in collaboration with the Royal Society for the Protection of Birds, The Lodge, Sandy, Bedfordshire.

A successor to 98 presenting text, colour paintings and sound recordings of 23 species of woods and hedges. Excellent recordings by the late A. G. Field.

**131.** SHOVE, LAWRENCE C. 1969. *Dawn Chorus and the Nightingale and Mountain and Highland Birds*. Shell Nature Records: British Birds Series. Two 7-inch 33.3 rpm, DCL 708 and DCL 709. Discourses, 10a High Street, Tunbridge Wells, Kent.

The second disc includes the rarely taped Dotterel *Eudromias morinellus* (L. Shove), Scottish Crossbill *Loxia curvirostra scotica* (J. Kirby) and Golden Eagle *Aquila chrysaetos* (C. E. Palmar).

132. NORTH, M. E. W., and SIMMS, E. A. 1969. *Witherby's Sound-Guide to British Birds*. Two 33.3 rpm, EAS 001-2 and EAS 003-4, and book (104 pages). H. F. & G. Witherby Ltd, 61/62 Watling Street, London EC4.

A re-issue of the publication that first appeared in 1958 (33 in the original discography). The previous format was two books and thirteen 78 rpm discs. The new issue is one book and two 12-inch LPs. Apart from the dropping of the recording of Baillon's Crake *Porzana pusilla* now known to be a Little Crake *P. parva* (*Brit. Birds*, 61: 422-423), no revisions or other corrections have been made. For example, the error pointed out by John Burton (see 33) under Common Tern *Sterna hirundo*, where the calls at the end of the band are those of Black-headed Gulls *Larus ridibundus*, has not been put right. Another error detected more recently by Robin J. Prytherch is that the recording of swans in East Prussia in 1933, attributed to Whoopers *Cygnus cygnus*, is in fact of Bewick's Swans *C. bewickii*. To have revised this publication fully in the light of nearly ten years' progress would admittedly have been a monumental task, but nonetheless a worthwhile one. Even so, it was tremendously worth re-issuing. Although more comprehensive sets of recordings are available from Sweden (34 and 104), and France (68, 75 and 100), this *Sound Guide* remains unsurpassed in the English language with its 300 recordings of 194 species.

#### ACKNOWLEDGEMENTS

I am indebted to a number of people for translations as follows: from the Swedish, Sten Wahlström; from the French, Dr Claude Chappuis and F. E. B. Guise; and from the German, Dr C. König. Mrs Audrey Ludvik also bestowed her usual care on the typing of my manuscript.

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PLATE 52. Light-phase Booted Eagle *Hieraaetus pennatus* sunning its wings, France, August 1968. Note the broad buffish band across both wing-coverts and scapulars (recalling a Black Kite), the pale tail-coverts, and the white shoulder patches that extend back from the light under-parts (pages 333-335) (photo: Pierre Petit)







PLATES 53 and 54. Left, light-phase Booted Eagles, France, August 1967 and 1968: note the 'booted' legs and pale under-parts. Above and below, two dark-phase ones, August 1965 and, below right, 1964: they are similarly patterned above but darker, and wholly dark brown streaked with black below (page 333) *photos: Pierre Petit*





PLATE 55. Twilight phase, 1967, and 1968, and a dark phase, 1968, in the colour of the face, the degree of contrast in the plumage, and the degree of contrast in the tail. Their whitish under-tail with flight character better show primaries on the dark-phase there is still a white show



agles, France, August 1966  
965. The light-phase variety  
it of streaking below and  
soverts (*cf.* plate 53 too);  
or to individual variation.  
l-defined darker tip is a  
ran in plate 58. The pale  
ick of sunlight, but note  
ch (*photos: Pierre Petit*)



PLATES 56 and 57. Light-phase female Booted Eagle at nest with one egg (visible below), Spain, May-June 1970. Two eggs are more usual and this one may have been added (page 337). This nest, forty feet above sloping ground in an oak, was some four feet across and made of sizable sticks with a shallow cup of old leaves and new greenery round the edge (*photos: M. D. England and, lower right, A. N. H. Peach*)









PLATE 58. Top three, light-phase Booted Eagles (one diving at a sparrow), France, August 1966, and lower two, dark-phase, August 1964. The light-phase is patterned like an Egyptian Vulture, while the dark-phase resembles a Black Kite but with an unforked tail looking dirty orange in strong sunlight. Note the pale wedge between primaries and secondaries in both phases and the thin white trailing edge to wings and tail, faintly visible in the two on the left (page 334) (photos: Pierre Petit)

# Studies of less familiar birds

## 161 Booted Eagle

R. F. Porter

*Photographs by Pierre Petit, M. D. England and A. N. H. Peach*

*Plates 52-58*

The Booted Eagle *Hieraaetus pennatus* is a small eagle similar in size to a Buzzard *Buteo buteo*, but of slimmer build, with narrower wings and a longer tail. In flight its proportions are not unlike those of a Black Kite *Milvus migrans*, though the tail is square-ended, not forked (plate 58). When perched, its long feathered tarsi, or 'boots', are characteristic (plate 53b). The species is dimorphic, a feature which, among European birds of prey, it shares only with Eleonora's Falcon *Falco eleonora*. Many raptors show considerable plumage variations, but in most cases these take the form of clines from very pale to very dark through a whole range of intermediates. The Booted Eagle has two very distinct phases—a light and a dark. This dimorphism is exhibited by both sexes; breeding pairs frequently consist of one dark and one light and their offspring may be either light or dark. Both phases are brilliantly illustrated in plates 52-58.

The light phase has a lightly streaked tawny-rufous head and neck, with a white forehead and superciliary stripe and dark tawny-brown ear-coverts and cheeks. The under-parts are white with rufous streaks on the chin, upper breast and flanks (plates 55a and b), and the under wing-coverts are also white with brownish flecks (plate 58b). Immatures look more 'gingery' below. The white under-parts extend on to the 'shoulder' to form a white patch (especially plate 52). The mantle and back are dark brown, with blackish primaries and secondaries, and there is a conspicuous broad bar of pale buffish-brown on the upper wing-coverts and scapulars, giving the upper-parts the appearance of a well-marked Black Kite (plate 52 again). The upper tail-coverts are pale buffish-brown, contrasting with the brown back and brown tail; the latter is faintly barred with grey. The under tail-feathers are white with a varying amount of dark smudgy grey on the tips, particularly of the central feathers.

The upper-parts of the dark phase (plates 54a and b) are similar to those of the light phase, but the under-parts (plates 54c and 55c) are wholly dark brown, streaked with black, though the bases to the primaries are paler brown and the under-tail is also paler, frequently taking on an orange tinge. The white shoulder-patch can occasionally be discerned in the field (plates 54a and 55c).

In flight at long range, light-phase Booted Eagles show a conspic-



uous under-wing pattern of white forewings contrasting with black flight-feathers, not unlike the pattern of an adult Egyptian Vulture *Neophron percnopterus* (plate 58b); despite their differences in shape and structure, I have seen these two species confused more than once. Dark-phase birds can be more easily overlooked, particularly among flocks of Black Kites. To some extent they also resemble brown Marsh Harriers *Circus aeruginosus*, though the wing position when soaring is quite different: the Booted Eagle holds its wings level, not in the shallow 'V' of the harrier. From beneath, both phases show a paler area on the inner primaries and outer secondaries (plate 58), but a much more elusive character (just discernible in plates 58a and 58d) is the translucent whitish trailing edge to the wings and tail, sometimes visible when overhead in bright sunshine. The wing-beats are deeper and more floppy than those of Buzzards and are interspersed with glides on level wings.

The breeding distribution of the Booted Eagle was described in detail by Vaurie (1965) and Dementiev and Gladkov (1966). In western Europe it is confined to Spain, Portugal, central and north-east France and the Balearic Islands, and in the east to Hungary, Yugoslavia, Albania, northern Greece, Bulgaria, Romania and European Russia almost as far north as Moscow. Its range extends along the north coast of Africa from Morocco to Tunisia, and in southern Asia from Turkey, northern Syria and the Caucasus through northern Iran to Afghanistan and north-west India, as well as the Turkmen, southern Uzbek, Tadzhik and Kirghiz Republics north-east to the region of Lake Balkhash. In central eastern Asia it occurs again in the northern Altai Mountains, northern Mongolia, the Sayan Mountains and the Irkutsk region eastwards beyond Lake Baikal to northern Manchuria. Thus this eagle is distributed in three main regions: western Europe and north-west Africa, eastern Europe and southern Asia, and northern Mongolia and the Lake Baikal area. At its broadest the range extends south to 35°N and north to 55°N.

Systematists differ on the degree of subspeciation involved over this range of 7,000 miles from west to east. Vaurie (1965) treated the species as monotypic, but B. Stegmann (*Orn. Monatsber.*, 43: 151) separated the population of southern Siberia and northern Mongolia as *H. p. harterti* (with which *H. p. milvoides* and *H. p. albipectus* are synonymous). Brown and Amadon (1968) also split the species into two races. Whatever the conclusion, the fact remains that Booted Eagles in the east of the range are longer-winged and migrate to Malaya, Burma and India, while those in the west migrate to north-east and tropical Africa. There does not appear to be any clear geographical distribution of the light and dark phases throughout the range (Dementiev and Gladkov 1966), though there is a tendency to find a higher ratio of dark birds in the east. From observations of

migrants in Turkey, and in particular at the Bosphorus, it would appear that the Booted Eagles of eastern Europe are largely of the light phase (of the order of 75 %).

As with nearly all raptors, the Booted Eagle is decreasing in numbers. In France the population has been estimated at only 30 to 50 pairs and steadily decreasing; in Portugal it is 'scarce' and in Spain 'thinly spread' (I.C.B.P. 1964). At the Bosphorus 260 migrants were counted between 11th August and 9th October 1966, and similar totals in 1967, 1968 and 1969; a century ago, however, A. Alléon and J. Vian recorded flocks of several hundreds passing in rapid succession (Porter and Willis 1968). In Russia Dementiev and Gladkov (1966) recorded a decline in the population of the Kharkov region and indicated that changes in habitat were responsible. The breeding areas include deciduous or coniferous woodland from well-forested areas to scattered clumps of trees and from sea-level up to 10,000 feet. The preferred habitat, however, seems to be wooded slopes with open glades and adjacent open or cultivated areas in the foothills of more mountainous regions. Forest clearance throughout Europe and Asia must have had an adverse effect on the population. In addition, the habitual shooting of birds of prey throughout much of their range, particularly in the countries through which they migrate, must have taken a considerable toll. In the three countries of western Europe where Booted Eagles nest—Spain, Portugal and France—the species is not protected. Even if protection were afforded to it, enforcement would be impossible without protection of all other birds of prey, for how many members of the shooting populace could distinguish between, say, a Buzzard and a Booted Eagle?

On migration in Europe, Booted Eagles can be most easily observed at the Bosphorus and Gibraltar. Spring migrants start to arrive in late March and the peak generally occurs in the first two weeks of April, though migrants (possibly non-breeding birds) can still be seen on passage in late May. In autumn the peak occurs in the middle weeks of September, and at the Bosphorus it coincides with the peak passage of Lesser Spotted Eagles *Aquila pomarina* and Buzzards. In both spring and autumn my own observations have been of single birds, or occasionally of groups of up to three.

In Europe Booted Eagles start to take up their territories in mid-April. As with most birds of prey, the nuptial display-flights are spectacular and the birds are then extremely vociferous. Booted Eagles which I watched in Istanbul's Forest of Belgrade were far more active and spent longer on the wing than the other nesting raptors of the area. The most frequent display consists of a series of steep undulations with the wings held close to the body. This is performed by both sexes and the position adopted is similar to that in plate 58c, which shows one diving towards its prey, in this case a sparrow

*Passer sp.* Sometimes one of the pair turns on to its back in mid-air and presents upstretched claws to its mate. During these nuptial aerobatics the call I have heard is generally a rather querulous *kvee-kvee-kvee*, uttered by both birds, though clearly from Dementiev and Gladkov (1966) and Brown and Amadon (1968) there are many variations of this. Both at the breeding grounds and on migration, their great agility and rapid manoeuvrability are seen at their best when being mobbed by or mobbing other birds, particularly raptors, and one gains the distinct impression that Booted Eagles indulge in these aerial forays as much for their own sake as in guarding a territory. When being mobbed, the bird may rapidly gain speed with deep, powerful, wing-beats and then suddenly roll over sideways flinging its talons into the air at its pursuer. It will then right itself and continue leisurely as if nothing had happened.

The aerobatic skills of this eagle can also be appreciated when it is hunting: Meinertzhagen (1959) gave perhaps the most vivid descriptions of Booted Eagles after prey. They feed mostly on small to medium-sized birds, including Partridges *Perdix perdix* and Turtle Doves *Streptopelia turtur*, and on small reptiles and mammals such as the Suslik *Citellus citellus*, probably one of the most conspicuous rodents over large areas of their breeding range. They capture prey by a lightning swoop on to the ground or into a tree (plate 58c), and will twist and turn with great agility through branches and foliage in pursuit. They often hit the ground with great force when chasing grounded birds and mammals, and at such times show complete disregard for any human beings near-by.

The nest is built well up in a tree, either deciduous or coniferous; occasionally the pair will add material to the old nest of another bird of prey instead. In north Africa the species is said to breed on rocky crags (Brown and Amadon 1968). The nest is a large structure, often measuring four feet across and two feet deep, though the cup is shallow, as can be seen in plate 56 where the egg is also visible. It is frequently—perhaps always—adorned and lined with fresh foliage (see plates 56 and 57) which stains the eggshells, initially almost always white, until they become blotched and spotted in various shades of brown; true pigmentation of the eggs, in the form of rusty spots and streaks, is very rare indeed (Blair 1964).

Booted Eagles normally lay two eggs, sometimes only one and rarely three, at intervals of two to four days. In Europe egg-laying takes place in late April or May. The breeding habits have been poorly studied, but incubation, by the female alone, lasts about a month and the young spend some nine weeks in the nest (Dementiev and Gladkov 1966). Throughout this period the male does most, if not all, of the hunting and brings food back to the sitting female and their growing young. The whole process from the onset of incubation to the first precarious

flights of the young bird (I use the singular as, in common with many other eagles, normally only one reaches the flying stage) takes about three months.

In conclusion, some notes on the photography. Pierre Petit took his remarkable series over five successive Augusts, when the young (after fledging in late July), and more rarely the adults, perch for long periods on dead trees. Plates 52, 53b and 55b were taken at 9-10 metres and the rest of plates 53-55 at 19 metres, using a 400 mm lens and in 1966 a 640 mm one. Mr Petit regards the bird on plates 53a and 55a as an adult and the others as four different juveniles. (The flight photos may relate to other individuals as three pairs bred in the area each year.) There is much variation, but he considers light adults to have darker faces than the young, and whiter, less rufous under-parts with more distinct streaking, though sometimes only their worn plumage distinguishes them.

Dr Geoffrey Beven has provided notes on the nest on plates 56 and 57. Found in south Spain on 21st May 1970, it was photographed by Dr A. N. H. Peach on 30th May and by M. D. England during early June. The habitat was a steep-sided wooded valley in mountain country. Most of the trees were well-spaced cork oaks *Quercus suber* with tall heath and bracken in between, but the nest was in another oak, *Q. faginea*. Because of the slope, the nest was 33 feet from the foot of the tree but 40 feet above the ground directly below. It was four feet across and made of sticks and branches, some more than an inch thick and quite heavy. It appeared to be an old nest partly reconstructed: there was a large hole towards one side and the eagle had apparently reshaped the rest of the old cup into a new one. It was lined with old leaves, but there were fresh green ones all round the edge. The single egg was dirty white with no markings, but became stained fawn or pale brown. The presumed female (plates 56 and 57) was light-phase and the male dark. Unfortunately she was not seen at the nest after 11th June and it was concluded that the egg was probably addled.

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## Notes

**Kestrel attempting to prey on Weasels** On 27th October 1969, whilst driving along a narrow road near Peakirk, Northamptonshire, that was bordered on both sides by low hedges, I saw a female Kestrel *Falco tinnunculus* drop down on to the grass verge. It immediately flew up about two feet into the air and dropped again at the same spot, where it seemed to flap about after some animal running in the grass, but then I disturbed the bird and it flew off. When I stopped there, a Weasel *Mustela nivalis* came out of the grass looking very wet and bedraggled. Meanwhile the Kestrel had landed on an electric pylon overlooking the road about 150 yards away.

During the following ten minutes I saw a Weasel cross the road five times, and observed that three different animals were involved. On the fifth crossing the Kestrel left its perch, swooped low towards the road on the 'blind' side of the hedge and flipped over into the grass verge, making for the disappearing Weasel. This attempt was unsuccessful, and it flew to another pylon still overlooking the road. After about four minutes it returned to perch on a bush over a spot where another Weasel had appeared. On being disturbed from there, it flew to a tree some 100 yards away but still overlooking the road. After about 20 minutes the Kestrel flew back towards the Weasels' crossing-place, but unfortunately it saw me and returned to the tree. Two minutes later it did the same again, but this time I saw a Weasel cross the road and disappear ahead of the Kestrel; the bird hovered for about four seconds over the verge where the Weasel was hidden, and landed in a tree directly above this new crossing area. Unfortunately it was again disturbed and it flew to a pylon, on the way hovering for five seconds over a ploughed field—the first time it had attempted to hunt away from the road whilst I was watching, a period of over two hours. My observations came to an end as a shooting party appeared and the Kestrel flew away.

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In *The Handbook* only one record of a Weasel was included among prey taken by Kestrels, but subsequent observations have shown that attacks on Weasels are probably not rare and the above is an unusually full account. Mrs Sybil Selwyn (*Brit. Birds*, 59: 39) described an incident in which a Kestrel caught a Weasel and carried it up to a height of 40-50 feet, but then let it go, and notes by H. G. Hurrell (*Brit. Birds*, 59: 151) and Richard Price (*Brit. Birds*, 59: 306) showed that this ferocious little mammal is sometimes more than a match for the raptor. Incidentally, *The Handbook* also adds that a Kestrel has been seen to attack a Stoat *Mustela erminea*. EDS

**Abnormal nest of Moorhens** On 10th May 1969, at Pennington Marsh, Hampshire, we noticed an unusual nest of Moorhens *Gallinula chloropus* easily visible in a small clump of rushes. From a distance the whole nest-lining appeared pale buffish-white, and on close inspection we found that the nest was lined entirely with fairly thick pieces of corrugated paper which the birds had probably taken from a rubbish dump near-by. Furthermore, it contained five eggs of the same buffish shade which were very well camouflaged against the damp paper. It may be of interest to mention that there were large quantities of flimsier and more brightly coloured paper on the dump which no doubt would have been much easier for the Moorhens to have carried to their nest site.

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**Moorhen deliberately plucking its own flight-feathers** On 9th August 1969, at the London Zoo, I watched a Moorhen *Gallinula chloropus* stop feeding and deliberately pull out five of its flight-feathers in succession. Each time the bird reached back over its wing-coverts as if about to preen, grasped a primary or outer secondary in its bill, and pulled it out with a sharp tug. The strength of each pull bent the bird's wing forward and upward, and it had to alter the position of its feet to keep its balance.

In a footnote to page 202 of *The Handbook* (vol. 5), H. F. Witherby commented that Moorhens often have broken flight-feathers just before they start to moult (during July-August), and suggested that these breakages may be intentional. Examination of skins at the British Museum (Natural History)—probably including those on which Witherby commented—disclosed three July-August ones with many remiges and rectrices broken off (registration numbers 1914.10.8.15, 1934.1.1.2054, 1934.1.1.2055). The absence of other damage to the vanes of these broken feathers precludes the possibility of shot damage as the cause, and the widely differing points at which individual feathers on the same wing or tail were broken suggests that they were unlikely to have snapped accidentally. Dozens of specimens collected at other seasons do not show similar feather breakages, and other specimens in worn plumage collected in July and August have no broken feathers (for example, 1914.9.30.273). Taken together, these points suggest that the feathers were broken by the birds themselves, as proposed by Witherby.

Deliberate feather-breaking seems unlikely to be of any value to the bird; the only plausible explanation for the occurrence of these broken feathers at the time of moulting is that they resulted from attempts to pluck them out. Moulting Moorhens quickly shed all their flight-feathers, regrowing them within a few weeks. Feather-plucking behaviour may help to synchronise feather loss, hence speeding up the

entire moulting process. As Moorhens sometimes fail to moult an odd wing-feather (*The Handbook*; personal observation), it is possible that the physiological factors causing the moult may sometimes be more effective when supported by feather-plucking behaviour like that described in my first paragraph.

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**Great Black-headed Gull in Yorkshire** On Friday 31st March 1967 G.T.F. was inspecting the gull flock at Lingerfield rubbish tip, near Knaresborough, Yorkshire. As he watched from his car a large immature gull flew past at ten yards' range; it had a dark brown head and a very large pale bill with a black band near the tip. Unfortunately it flew over to a ploughed field on the far side of the tip, some 400 yards away, where a large number of Lesser Black-backed Gulls *Larus fuscus* were resting. He considered it to be a Great Black-headed Gull *L. ichthyaetus* and telephoned J.R.M. the same evening. The tip was visited throughout the weekend but without success; Miss Joan Fairhurst visited it again on 3rd April, and re-located the bird. At midday, J.R.M. watched it for an hour among the other gulls at the far side of the tip and was able to confirm G.T.F.'s identification. During this time it flew up only once, immediately dropping down again and resuming a sleeping position. The general body-plumage was nearest to that of a second-year Great Black-backed Gull *L. marinus* but for more finely mottled back and wings and a very clear-cut black band at the tip of the white tail. From the front the head looked very angular; the face and ear-coverts appeared brownish and the back of the head was dirty white, giving it a fierce, hooded appearance. Compared with the adult Lesser Black-backs the under-parts were creamy, and the stance very upright, and these characters combined with the dark head made the bird very conspicuous. In flight, too, it could be picked out with ease, being long-bodied and broad-winged with a lazier, shallower wing-beat than *L. marinus* which it matched in size except for the smaller head.

It remained at the tip with the other gulls until 14th April, when the weather became much warmer and the flock started to disperse. The gulls usually scavenged on the newly tipped rubbish as soon as the dumper driver left for lunch and in the late afternoon, and the many visitors came to expect its appearance at the tip at noon and 4 p.m. It was quite aggressive, once attacking a Herring Gull *L. argentatus* with food from below in a skua-like manner. Between feeding periods the flock rested in the surrounding fields or at some near-by gravel pits. The following is a summary of the descriptions taken:

*Plumage:* Forehead, crown and sides of head mottled dark brown and dirty white, darkest on the ear-coverts and more extensive on the left side. (The dark brown on the head became less intense during the bird's stay, and the

photographs shown in *Brit. Birds*, 61: plate 48 were taken on 13th April.) Back of head creamy-white, with a darker line down the centre which broadened at the base where it formed a well-defined line with the white of the hind neck. Mantle and wing-coverts greyish-brown, tipped white; scapulars greyish, broadly edged white, slightly darker than the rest of the mantle. In general, mantle and wings more finely mottled than immature *L. marinus*. Primaries dark brown with very narrow paler tips to inner webs. Secondaries dark brown with whitish tips. Tail white with a broad, well-defined black band, broadening slightly in the centre, and beyond this a very narrow whitish terminal band. Outer web of each tail-feather conspicuously white. Under-parts white with a definite creamy tinge, especially noticeable against the pure white under-parts of the adult Lesser Black-backs; a few small brown spots at the sides of the breast. Under-wings pale brownish-grey, finely flecked darker. *Soft parts*: Long heavy bill; colour variously reported as 'orange-pink', 'pale horn' and 'creamy-yellow', apparently becoming yellower as the head moulted, with a few longitudinal dark marks on the upper mandible and a black band near the tip; extreme tip cream. Iris chestnut; legs and feet pinkish-flesh.

This was the seventh British record (the first in Yorkshire) of this vagrant from southern Russia and Asia (see also *Brit. Birds*, 61: 343, plate 48).

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**Common Tern in flight apparently attempting to break shell of crab** On 2nd May 1954 Peter R. Powell saw a Common Tern *Sterna hirundo* in flight drop and retrieve an unidentified object three times before it fell into the water, and on 18th September of the same year P. A. D. Hollom watched similar behaviour by a Sandwich Tern *S. sandvicensis* which dropped and caught what he thought was a two-inch long fish about nine times before it finally fell into the sea (*Brit. Birds*, 48: 282). No subsequent notes on such behaviour by terns have been published in this journal. Late in the evening of 23rd August 1969, at Radipole Lake, Weymouth, Dorset, I was fortunate to observe at close range a rather more elaborate performance by a Common Tern. Carrying a small crab in its bill, it made a series of upward glides with wings partly extended; at the peak of each glide it released the crab only to recapture it a moment later with a quick snap of its bill. During the seven minutes before the tern was lost to sight, the crab was 'pinched' very many times; the tern seemed to be not merely playing with its victim but deliberately attempting to break its shell.

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**Blackbird mounting injured juvenile** The note by David M. Burn (*Brit. Birds*, 62: 498) on a Tree Sparrow *Passer montanus* mounting its dead mate prompts me to record a somewhat similar observation concerning Blackbirds *Turdus merula*. On 10th June 1965, at Redland, Bristol, I saw a well-grown juvenile Blackbird lying prone by the



side of a road. It was severely injured and was flapping its wings in an attempt to rise; I assumed it had been struck by a passing car. Then an adult male Blackbird flew over to the wounded bird from a near-by verge. Flapping his wings and extending his head, he mounted the juvenile. This apparent copulatory behaviour continued for a few seconds until people approaching disturbed the male and he flew off. The juvenile's movements soon stopped and it died shortly afterwards.

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Copulation attempts on well-grown fledglings, sick or injured birds are not uncommon in many species. The criterion for such action by a male, according to Derek Goodwin, may simply be an 'inability to resist', whether this is due to readiness as in the soliciting female or weakness as in the young or sick bird. Eds

**Colour preferences by hand-fed Robin** During the summer of 1969, in my garden at Brentry, Bristol, an adult Robin *Erithacus rubecula* became accustomed to taking sultanas from the hand of either my wife or myself; almost certainly one individual was concerned, probably a male. It seemed, therefore, a suitable opportunity to test the Robin's reactions to sultanas of different colours and, by hand-feeding, it could be ensured that the food was not taken by other birds. Five series of experiments were conducted during autumn 1969.

Sultanas were painted with a thick suspension of water colour. The paints used were scarlet lake (called here 'red'), chrome yellow, emerald green and cobalt blue. The first experiments were carried out from 21st September to 21st October: one coloured and one normal sultana were offered together to the Robin 101 times during this period. A choice of one red and one normal fruit was offered 24 times, yellow and normal 29, green and normal 26, and blue and normal 22. A red fruit was taken and eaten on two occasions and a yellow on three; no green or blue sultanas were accepted, while the number of natural sultanas selected was 95. One red sultana was taken and then rejected. It should be mentioned that the relative positions of the sultanas on the palm of the hand were altered at random and there was no ordered sequence in the colours offered. As in each subsequent series of experiments, the sultanas were offered in good light on the out-stretched palm; the times of feeding and number of feeds per day depended on the appearance of the Robin in a hungry state and the availability of someone to feed it. The results of this first series of tests showed that only about 5% of the sultanas selected were of abnormal colour; perhaps this was hardly surprising as the bird had been conditioned to being given normal sultanas for some months previously. The coloured fruits selected were either red or yellow, and

it could be argued that these colours approach that of a natural sultana, which varies from light brown to dark brown, more closely than green or blue.

The second series of tests, between 22nd October and 1st November, included no natural sultanas. Four sultanas, one red, one yellow, one green and one blue, were offered on ten occasions. A red fruit was eaten six times and a yellow fruit once; no green or blue fruit were chosen. There were three refusals to take a sultana after hovering over the hand. As the Robin appeared to be accepting coloured fruit more readily, a third series of experiments was carried out between 1st and 20th November. Here one normal and four coloured sultanas, one of each colour, were offered simultaneously 100 times in all. Red was chosen 48 times and yellow 16; 36 natural sultanas were taken, but once again the Robin would not accept green or blue fruit. There were no rejections. Green and blue were then tested separately in a fourth series, from 21st to 26th November: one green and one blue sultana were offered on 25 occasions. No green sultanas were chosen; 17 blue ones were eaten and the bird refused to land eight times. It remained to be seen whether the Robin would accept green sultanas if those of no other colour were available, so in a fifth series of tests, on 26th and 27th November, a single green sultana was offered on five occasions; each time it was taken and swallowed.

Thus the Robin almost always selected sultanas of normal appearance until only coloured ones were offered. Then it developed a preference for red, with natural fruit second choice and yellow third. When green and blue alone were offered, blue was preferred, but the bird was willing to eat green fruit when none of the other colours was forthcoming.

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**Late singing by Grasshopper Warblers** I read with interest Dr A. P. Radford's note on Grasshopper Warblers *Locustella naevia* singing persistently in August (*Brit. Birds*, 62: 498). While mist-netting south of Hightown, Lancashire, on 1st August 1969, P. Fearon, D. J. Low and I heard the reeling song of this species. Later we netted one of them and know that at least one other was singing on that date. During the evenings of 8th, 15th and 22nd August Grasshopper Warblers were still singing at this locality, but subsequently no song was noted. I had heard non-breeding males singing in this area, which was not a breeding haunt, in early July, and thought that perhaps these August birds were also non-breeders. In 1970, however, Grasshopper Warblers were again singing there up to 7th August and this year we proved that the species bred in the vicinity, ringing fully-fledged young on 12th July and 9th August.

A. S. DUCKELS

16 The Spinney, Freshfield, Liverpool L37 7EL

**Shore-feeding of Starlings** Between 3rd and 10th March 1970, on Tresco, Isles of Scilly, I noticed that Starlings *Sturnus vulgaris* regularly fed at low tide on the island's sand beaches and weed-covered boulder-strewn shores. My attention was first attracted by seeing a Starling feeding with a party of Turnstones *Arenaria interpres* on organisms revealed by turning over bladder wrack *Fucus* sp; I later found this habit to be common on the island, as many as six Starlings joining a flock of about 15 Turnstones. Apparently the Starlings did not rely directly upon the waders but remained within their flock and probably benefited from their disturbance of the weed. I did not see a Starling attempt to 'turn' any bladder wrack on its own behalf.

On one occasion I watched four Starlings with this Turnstone flock feeding on sand shrimps *Amphipoda* on a beach recently exposed by the ebbing tide. Both species found the shrimps by probing, the only difference being that the Starlings probed with their bills more open than those of the Turnstones.

J. R. M. TENNENT

*Bucknowle Hanger, Wareham, Dorset*

Shore-feeding is a normal habit of Starlings, but the close association with Turnstones described above is interesting. P. F. Goodfellow (*Brit. Birds*, 57: 302) noted that 'a flock of thirty or more Starlings' which regularly fed on organisms (probably sandhoppers *Talitrus locustra*) among tidewrack in Wembury Bay, Devon, 'often feed shoulder to shoulder with Turnstones and turn over the seaweed in the same way'. EDS

**Starling feeding from nut bag** On 29th March 1970 I watched a Starling *Sturnus vulgaris* feeding from a plastic mesh nut bag hung from a tree in my garden at Halesowen, Worcestershire. It clung to the mesh with its feet and extracted shelled peanuts; some it ate *in situ*, but on occasion it took a nut down to the lawn and ate it there. The Starling did not fly directly back to the bag but stepped on to it from a twig below. I watched it for some 15 minutes before it flew off; during this time it left and returned to the nut bag more than half a dozen times.

B. BENTLEY

*4 Rochford Close, Halesowen, Worcestershire*

**Siskin at nut bag** On 29th March 1970 a female Siskin *Carduelis spinus* flew to the bird table in my garden at Stapleford, Cambridge. At the time a Greenfinch *C. chloris* was feeding on peanuts in a plastic mesh bag suspended near-by; when this bird left with a nut the Siskin immediately took its place and commenced to peck at the nuts until it was dislodged by another Greenfinch. The Siskin made two such feeding attempts before finally flying away.

B. HARRUP

*49 Priam's Way, Stapleford, Cambridge CB2 5DT*

**House Sparrows feeding from nut bag** During the winter of 1969/70 we suspended net bags of shelled groundnuts from trees in our garden at Dunvant, Swansea, Glamorgan, to provide food for tits *Parus spp.* Greenfinches *Carduelis chloris* quickly took advantage of this food supply, but I was surprised to find that before long several House Sparrows *Passer domesticus* also took to feeding from the nut bags; soon they became quite as adroit as the tits in extracting nuts, often hanging head-downwards to do so. DAVID G. P. CHATFIELD

3 Cyncoed Close, Dunvant, Swansea, Glamorgan SA2 7RS

**House Sparrow hovering to extract nuts from tit-feeder** In my garden at Tadworth, Surrey, tits *Parus spp* and House Sparrows *Passer domesticus* regularly fed together on nuts from an open-sided tit-feeder during 1967 and 1968. In October 1968, in an attempt to discourage the sparrows, I replaced the feeder with another of a different design, with closed wooden sides and mesh at the bottom. The sparrows kept away for about three weeks, but then I noticed a female hovering under the mesh and pecking at the nuts above. At first she persisted for only a few seconds, but by the end of November she would regularly hover for a minute or more, returning to the ground between each attempt. After three or four such attempts, she would manage to extract a piece of nut and fly off with it.

None of the other sparrows was seen to hover at the tit-feeder during the winter of 1968/69, and no such behaviour was observed during the following winter.

P. O. DUNKLEY

80 Shelveys Way, Tadworth, Surrey

We are publishing the above four notes to draw attention to the increasing number of species feeding from bags of peanuts, sunflower seeds, etc. hung for tits during the winter. The Siskin observation is particularly interesting. According to bulletins 100 and 101 of the Cambridge Bird Club (1970), however, up to five Siskins 'took up residence in the vicinity of a nut-bag' in Cambridge for several weeks, the last leaving on 18th April 1970, though whether they actually fed at the nut-bag is not stated. The last of the above notes also describes a feature of House Sparrow feeding behaviour not recorded in *The Handbook* and seldom mentioned in the literature. This was presumably occasioned by the special design of the tit-feeder; another observation, by R. D. English, involving several House Sparrows obtaining peanuts by hovering and then clinging to the under-side of the mesh of a feeder of this type, was published in the monthly bulletin of the Kent Ornithological Society for September 1970.

Several other records of various species of garden birds feeding at tit-feeders have come to our notice, and correspondence on this subject must now be closed. EDS



## Reviews

**Natural History of the Lake District.** Edited by Canon G. A. K. Hervey and J. A. G. Barnes. Warne, London, 1970. 230 pages; 32 plates, 8 in colour; 3 maps; 20 line drawings. 60s.

Lake District naturalists owe a considerable debt to the late Canon Hervey for his energy and initiative in the fields of conservation and education, of which this book is the latest example. Following his death, it was seen through into print by J. A. G. Barnes. Its purpose is described as being to inform the interested walker or tourist about the area defined as the Lake District National Park. This is the central area of lakes and fells within the more natural unit of the Lake Counties. It happens that many localities of natural history interest in this region lie outside the National Park and tempt some of the contributors to wander.

The reader in mind, by definition uninformed, is provided with some fairly basic and, of necessity, general concepts and the local treatment assumes a minimal knowledge of the subject. There are eleven essays by authors with a considerable claim to authority, an introduction and an epilogue by the senior editor, a description of some local organisations, a bibliography and an index. Five of the essays are brief and deal with Lichens, Fungi, Molluscs, Spiders, and Amphibians and Reptiles in some fourteen pages. The six longer essays deal with: Geology and Terrain; Flowering Plants, Ferns and Mosses; Life in the Water; Insects; Birds; and Mammals. They combine to form an excellent introduction to the natural history of the area. A good deal of the information is not readily available elsewhere. The absence of any reference to a recent publication *Lakeland Molluscs* (*Trans. Carlisle Nat. Hist. Soc.* XI, 1967) is, however, a serious omission in one section.

The article on Birds, by John Barnes, is, as one would expect, a highly competent and up-to-date summary, including the 1969 breeding attempt by the Golden Eagle (successful in 1970, incidentally). It also includes a list of the 140 species to which reference is made. This could have been usefully expanded on a conveniently situated blank page to mention all the species regularly found. Each major habitat, from the fells to the coast, and the ebb and flow of species are well covered. The visitor can readily decide what sort of records are likely to be of value. Naturally, when presenting a series of conclusions, some will be arguable. There is clearly more than one point of view about migration through the central fells. The Tufted Duck is now far from being a scarce breeder and the Pochard and Goosander can be added to the list. In this section, as elsewhere, the treatment of the south-eastern half of the area is stronger than that of the north-western.

The book is handsomely produced. The bird plates, by J. B. and S. Bottomley, are excellent. Several other plates could have been omitted without loss and one or two of the colour plates are well below the general standard. There is an unusual amount of blank space on the numbered pages: less lavishness might have allowed the price to be reduced.

RALPH STOKOE

**The Albatross of Midway Island: A Natural History of the Laysan Albatross.** By Mildred L. Fisher. South Illinois University Press, Carbondale, 1970. 161 pages; 67 black-and-white photographs; 2 maps. \$5.95.

The albatross is one of the small band of legendary birds of mythology, occupying the same role in the folklore of the sea that the eagle does in that of the land. It is one of the ancient tragedies of ornithology that the original North Atlantic population seems to have died out during the ice ages, and the reappearance of a handful of birds, a couple of which appear to have taken up territories and started advertising for mates in gannetries in the Westmann Islands and on the Bass Rock, is one of its most exciting recent developments. The appearance of a particularly good book on one of the North Pacific albatrosses therefore seems unusually timely.

The three North Pacific albatrosses originally bred in colonies of hundreds of thousands on the more northerly of the central archipelagoes, but were nearly wiped out by Japanese plume-hunters at the end of the last century. The species with the most westerly distribution, the Short-tailed Albatross, possibly the direct descendant of the English Albatross of the late tertiary deposits of Suffolk, was nearly exterminated and is only just beginning to recover. Two smaller species, the comparatively oceanic Laysan Albatross and more coastal Black-footed, had recovered their numbers in the Hawaiian Leeward Islands before the war, when they suddenly encountered a new threat with the development of major military bases on the breeding islands. Birds and men got along well enough together for a while, but when the bases were further enlarged as a result of the development of the aerial radar chain in the 1950's there were proposals for reducing the bird populations. These provoked one of the most vigorous conservation battles of recent times, followed by a fair degree of limitation of the control measures and the provision by the military authorities of facilities for ornithologists to study the birds. The uneasy compromise that resulted has kept damage to both aircraft and the bird population within reasonable limits, and also given rise to a long series of scientific papers of exceptional interest. The wife of one of the leading research workers has now produced something much rarer and more valuable as well, a major classic of popular ornithology describing the life of the albatrosses.

Really good writing about birds is most unusual; the knowledgeable people seldom write well, and the good writers are seldom knowledgeable. Mrs Fisher has been absorbed in her subject for many years, and distilled from her experience an unusually simple, straightforward, unpretentious yet genuine account of the birds' life-history, illustrated with her husband's photographs. This seems to me the best book on a seabird since R. M. Lockley's *Shearwaters* a generation ago. It too marks a major milestone in the study of seabirds; we are no longer groping in the dark for the first clues to the nature of their lives, but can now describe the whole picture with growing confidence in the light of exact knowledge. A full popular account of the results of recent work has long needed writing in this way, and it is a particular pleasure to see it done so well, so accurately and so modestly about such an important and attractive bird. The work is also remarkable for its lack of bitterness, for one has to read carefully between the lines and study the map at the end to understand fully the havoc the military base has caused among the birds, but the effect of the book is none the less devastating for that.

W. R. P. BOURNE

**The Naturalist in Wales.** By R. M. Lockley. David & Charles, Newton Abbot, 1970. 231 pages; 32 black-and-white plates; 14 maps and diagrams. 55s.

It has been difficult for anyone wishing to read about the natural history of Wales to find a general description under one cover. This book is welcomed as a general introduction to the subject, which is all it pretends to be. Geology and the activities of early man are discussed briefly; mammals, birds and wild flowers are covered in more detail; other wildlife (including butterflies, reptiles, snails and fishes) are again dealt with more generally. The information has been collected mainly from the author's own studies and those published in *Nature in Wales*, the journal of most of the Welsh naturalists' trusts; it is a pity that he makes no mention of their work. Many characteristic Welsh species are illustrated in black-and-white plates. As most people today wish to be guided, a list of national parks, reserves and other places of interest is given with details of access and what may be seen.

Ornithologists will probably be irritated by the alphabetical sequence of species used in the status index of birds; for example, 'Creeper, Tree' and 'Tree Creeper' are given separate descriptions. Zoologists will find that the Mole is said to be absent from Anglesey, though in fact it flourishes on the island. A large clear map of Wales showing many of the places mentioned would have been an advantage.

This well-produced book should help to broaden the outlook of the specialist, as well as give the reader a good picture showing that Wales has much to be proud of and to look after. J. M. HARROP

## Letters

**Partridges attacking injured young** I was interested in G. V. Geiger's note 'Female House Sparrow attacking fledgling' (*Brit. Birds*, 62: 447-448). In my shooting days in Huntingdonshire, in the 1920's and 1930's, I witnessed three occurrences when an adult Partridge *Perdix perdix* in a covey attacked its young. In two of these I stalked a covey of Partridges and shot one or more before they flew out of range. In each case a single adult, probably the cock, returned alone and savagely attacked a shot bird fluttering on the ground. The third instance was when Partridges were being driven over gunners hidden behind a hedge. A bird was shot from a covey and fell some 80 yards behind the line of the guns. As it lay fluttering on the ground a single bird from the covey returned, settled, and attacked it.

Two other instances occur to me. These concern Lapwings *Vanellus vanellus* near Thetford, Norfolk, and Redshanks *Tringa totanus* in Huntingdonshire, in the 1940's. In each case a recently hatched chick did not obey the parent's call commanding it to hide and remain motionless as I approached, but continued running. The parent then dived on the young bird and attacked it.

C. F. TEBBUTT

*The Pheasantry, Wych Cross, Forest Row, Sussex*

## News and comment Robert Hudson

**Coastal conservation** A national plan for developing stretches of Britain's coastline for recreational and holiday uses, while preserving others, was proposed in two reports published by the Countryside Commission on 1st October. One of these reports, entitled *The Coastal Heritage* (available from H.M.S.O. at £4), is of special interest to conservationists. The Countryside Commission lists therein 34 areas of undeveloped English coastline of high scenic quality, which they recommend be designated 'heritage coasts'. The Commission urges that these stretches be subject to special planning and management, with severe restrictions on development; local planning authorities should employ trained conservation officers (90% of whose salaries should come from Exchequer grants) to advise on any development proposals. Many of these unspoiled coastal areas are, of course, well-known to naturalists, examples being the Spurn peninsula, north Norfolk, east Suffolk, Beachy Head, Chesil Bank, The Lizard, Gower, west Pembrokeshire, north Anglesey and St Bees Head. The Countryside Commission deserves every encouragement in its campaign which one hopes will receive Government backing.

**Lincolnshire birds** In 1953 the Lincolnshire Naturalists' Union issued its book *The Birds of Lincolnshire*. This is now brought up-to-date by a 38-page *Supplement to the Birds of Lincolnshire 1954-1968*, edited by the late R. K. Cornwallis, K. Atkin and A. D. Townsend. New information is listed under separate headings: Additions to the Lincolnshire list, Occurrences of rarities, Casual breeding, Species increased in status, Species decreased in status, and Miscellaneous records. Finally, there is a 12-page checklist of the county's birds, in which two lines are allotted to each species, giving brief indications of frequency of occurrence and relative abundance.



This booklet is available, price eight shillings, from the L.N.U., 160 Eastgate, Louth, Lincolnshire. We are very pleased to see that at least some of the standard regional avifaunas are being updated periodically with supplements, as was also done for Cheshire very recently.

**Some new periodicals** Three new periodicals broadly concerned with environmental pollution have appeared during 1970. January saw the first issue of the monthly *Marine Pollution Bulletin*, which, as its title suggests, is concerned with the pollution of the sea. It is designed essentially for the rapid dissemination of information relating to pollution of the seas, including summaries of and comments on research, and accounts of pollution incidents, counter-pollution measures and legislation; its scope is not restricted to British home waters, but is worldwide. *Marine Pollution Bulletin* is published by Macmillan (Journals) Ltd at an annual subscription rate of 50 shillings. The second periodical, *The Ecologist*, appeared in July; somewhat similar in style to *New Scientist*, it is well-written and competently produced. Despite the all-embracing title, the issues to date have been concerned largely with man's impact on the environment, with a bias towards the pessimistic. *The Ecologist* is published monthly, at four shillings per copy, and is available from Darby House, Bletchingley Road, Merstham, Surrey.

The third of these new periodicals differs from the other two in that it is designed as a quality scientific journal. *Environmental Pollution*, edited by Dr K. Mellanby with the assistance of an international editorial board, is to appear quarterly. Volume 1, number 1, published in July, contained one ornithological paper—on PCB residues in British wild birds, by Ian Prestt, Dr D. J. Jefferies and Dr N. W. Moore—plus others about chemical reactions by plants, lichens and tadpoles. All are of competent scientific standard. *Environmental Pollution* is published by Elsevier Publishing Company Ltd, of Barking, Essex, at the not inconsiderable annual subscription rate of £6 10s.

**CoEnCo Conference** The formation of CoEnCo (Committee for Environmental Conservation) was reported in the last 'News and comment'; its first conference of member organisations was held on 23rd September. I am grateful to Dr J. J. M. Flegg for the following reflections.

The conference started with a lucid and meaningful account of one senior politician's involvement with the environment. As Anthony Crosland's party is no longer in power, however, the points made were more of the nature of pipe-dreams. Nonetheless, they made far more interesting listening than the masterly tactical evasion of all relevant questions by Lord Stanford, representing the present administration. But in view of the scale of recent Government changes, with the creation of a super-Ministry of the Environment, this could perhaps be considered excusable. The meat of the conference—reports on pollution, sonic booms and heavy vehicles—was well presented and basically of great interest; but on looking round the audience it was apparent that not only were the speakers preaching largely to the converted, but the converted (in European Conservation Year) had heard or read the relevant gospel many times before. The range and tenor of the questions asked of the panel indicated the vastness of the unenviable task that CoEnCo has set itself in attempting to co-ordinate the views of bodies with such diverse interests and (more important) tactics.

**New address for the Edward Grey Institute** During November the Edward Grey Institute of Field Ornithology, together with the Alexander Library, is moving from the Botanic Garden, Oxford, to new premises where they are more fully integrated with the University's Zoology Department. The new address is: Edward Grey Institute, Department of Zoology, South Parks Road, Oxford OX1 3PS (telephone: 0865 56789).

**Obituary** It is with regret that we record the death of David Wolfe Murray, who died suddenly on 12th July 1970. To the present generation of bird-watchers, he was best known as an artist; under the nom-de-plume 'Fish-Hawk' he illustrated many popular bird books, including the late James Fisher's *Bird Recognition* series. In his younger days, Captain Wolfe Murray (as he was then) spent long periods at sea with the North Sea fishing fleets, recording his seabird observations in three papers in *British Birds* between 1928 and 1931.

*Opinions expressed in this feature are not necessarily those of the editors of British Birds*

## Recent reports P. F. Bonham

**These are largely unchecked reports, not authenticated records**

This summary covers July 1970 and, unless otherwise stated, all dates refer to that month. Rarities were few, but they included a number of surprising records. Among these were a **Black-browed Albatross** *Diomedea melanophrys* seen in the colony of **Gannets** *Sula bassana* at Hermaness, Unst (Shetland) on 10th and 12th—possibly the same as the one there on 29th May (*Brit. Birds*, 63: 222)—and a **Manx Shearwater** *Puffinus puffinus* far inland at Colnbrook (Buckinghamshire) on 1st. A **Balearic Shearwater** *P. p. mauretanicus* and a **Sooty Shearwater** *P. griseus* were identified from a steamer off north Devon on 24th, and the latter species was also recorded off the coasts of Northumberland, Pembrokeshire and south-west Ireland. The only unusual sea-watch of which we have heard resulted in no fewer than 300 **Manx Shearwaters** and 200 **Gannets** being counted off Hunstanton (Norfolk) during a north-westerly gale on 15th.

Two **Little Egrets** *Egretta garzetta* at Havergate (Suffolk) on 1st June and one in the Dyfi Estuary (Cardiganshire/Merionethshire) from 23rd June until 23rd August were inadvertently omitted from the last issue (*Brit. Birds*, 63: 310). Other July reports concerned one at Loch Gorm, Islay (Argyll) on 4th, another at Holme (Norfolk) on 17th and a third which stayed at a gravel pit near Norwich for several weeks, at least until 1st August, bringing the year's total to over 40 (though this unprecedented series must surely have involved some duplication). Apart from the Somerset **Little Bittern** *Ixobrychus minutus* which remained from June (*Brit. Birds*, 63: 310), the only other vagrant heron reported was a **Night Heron** *Nycticorax nycticorax* at Ballycotton (Co. Cork) from 6th July until 3rd August. Two **Spoonbills** *Platalea leucorodia* were present in the Yantlet Creek area of north Kent from 19th to 26th, but the only other reports, from Lancashire and Norfolk, almost certainly involved birds which had arrived in those counties in May or June. Two **Goldeneyes** *Bucephala clangula* in the Midlands and a **Pink-footed Goose** *Anser fabalis brachyrhynchus* in Lincolnshire were possibly escapes. **Ospreys** *Pandion haliaetus* were the only notable raptors, with about ten reports from England, the same number as in June. **Quail** *Coturnix coturnix* were still widely scattered in July.

At least 25 out of 35 or more pairs of **Black-tailed Godwits** *Limosa limosa* were seen with young on the Ouse Washes (Norfolk/Cambridgeshire), and breeding also occurred elsewhere in Norfolk, at a locality in the east Midlands and in Shetland. About 25 **Wood Sandpipers** *Tringa glareola* and ten **Little Stints** *Calidris minuta* were reported, but only three **Temminck's Stints** *C. temminckii* and three **Curlew Sandpipers** *C. ferruginea*. The only really rare wader was a **Pratincole** *Glorcola pratincola* at Crowan Reservoir (Cornwall) on 22nd.

An adult **Glaucous Gull** *Larus hyperboreus* flew south at Bamburgh (Northumberland) on 26th, another or perhaps the same appeared at South Shields (Co. Durham)

three days later, and two immatures were seen in Shetland. **Iceland Gulls** *L. glaucoides* were reported from Fair Isle (Shetland) and Ballycotton, and **Mediterranean Gulls** *L. melanocephalus* from six localities, including Covehithe (Suffolk) for the seventh year in succession. There were fewer **Little Gulls** *L. minutus* than in June, about 35 in all, and the largest party of which we have heard was eight at Minsmere (Suffolk). The most surprising gull record concerned a **Franklin's Gull** *L. pipixcan* at Arlington Reservoir (Sussex) on 4th, but it is not known whether this was the same individual as that which frequented Farlington (Hampshire), 55 miles to the west, earlier in the year (*Brit. Birds*, 63: 47, 143). Very few **Black Terns** *Cblidonias niger* were seen in July, but there were two reports of **White-winged Black Terns** *C. leucopterus*, both in Scotland: one at Aberlady Bay (East Lothian) on 5th and the other at Whiteness Head (Nairn/Inverness) on 14th. A **Gull-billed Tern** *Gelocbelidon uilotica* and a **Roseate Tern** *Sterna dougallii* were identified at Sandwich Bay (Kent) on 28th and the latter species appeared at two other localities in Kent and also at Netherfield (Nottinghamshire).

Two **Bee-eaters** *Merops apiaster* frequented Unst from 8th July to 5th August; it is rather surprising that the influxes of southern vagrants in April, May and June produced no reports of this species, and that the first for 1970 should appear in the far north of Scotland where Bee-eaters are extremely rare. An **Alpine Swift** *Apus melba* at Tring (Hertfordshire) on 16th May has only just come to our notice; another at Barrow-in-Furness (Lancashire) on 25th July was the fourteenth to be reported this year, and a **Thrush Nightingale** *Luscinia luscinia* on north Mainland (Shetland) from 31st until 7th August was the eighth: both totals are quite unprecedented. A **Dartford Warbler** *Sylvia undata* was an unusual visitor to Dungeness (Kent) on 30th, and may have been of southern rather than local origin, as it arrived during the same period as **Woodchat Shrikes** *Lanius senator* at Copeland (Co. Down) on 24th and on St Mary's (Isles of Scilly) on 30th and **Serins** *Serinus serinus* also at Dungeness on 29th and at Donna Nook (Lincolnshire) next day. The only other southern vagrant was a male **Black-headed Bunting** *Emberiza melanocephala* on Boreray (Outer Hebrides) from 6th to 8th. Lastly, a male **Scarlet Rosefinch** *Carpodacus erythrinus* was trapped on Fair Isle on 27th, two **Bramblings** *Fringilla montifringilla* occurred on Unst on 18th and an exceptionally early male **Snow Bunting** *Plectrophenax nivalis* arrived at Blakeney (Norfolk) on 17th to remain until at least mid-September.

July is often a thin month, and a rather short summary allows us to touch upon the abundance of some of the common summer-visitors. It is quite clear that **Whitethroats** *Sylvia communis* largely recovered from their low numbers in 1969, with two estimates of increases as high as 300% and 500%, but well over half of the many reports received indicated that they were still 'scarce' or well below their 1968 level; one put the 1970 population at 60% of that in 1968. **Grasshopper Warblers** *Locustella naevia* were unusually abundant; all reports spoke of 'good numbers' or 'widespread', or mentioned an increase, and in a nocturnal census throughout Kent on 23rd/24th May over 150 singing birds were counted against only 48 in 1969. On the debit side, after a very late arrival of **Spotted Flycatchers** *Muscicapa striata* (not until the end of May in most areas), nearly all observers reported a marked decrease. **Cuckoos** *Cuculus canorus*, **Nightingales** *Luscinia megarhynchos*, **Reed Warblers** *Acrocephalus scirpaceus*, **Blackcaps** *Sylvia atricapilla*, **Lesser Whitethroats** *S. curruca* and **Yellow Wagtails** *Motacilla flava* were evidently commoner than in 1969; **Redstarts** *Phoenicurus phoenicurus*, **Sedge Warblers** *Acrocephalus schoenobaenus* and **Tree Pipits** *Anthus trivialis* were possibly slightly up; **Whinchats** *Saxicola rubetra*, after a late arrival, were rather scarce. Finally, though out of place among these summer-visitors, **Redpolls** *Acanthis flammea* continue to be greatly on the increase as a breeding species, especially in the Midlands and East Anglia. All in all it was a good breeding season, helped no doubt by the persistently fine weather of May and June.



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# ***British Birds***

**The invasion of Nutcrackers in autumn 1968**

**J. N. Hollyer**

**(Obituaries: Norman Frederick Ticehurst, OBE, MB, BCh, FRCS (1873-1969)  
and Reginald Ernest Moreau (1897-1970))**

**A presumed Mediterranean × Black-headed Gull in Hampshire**

**J. H. Taverner**

**Notes**

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**News and comment**

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# British Birds

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# *British Birds*

## The invasion of Nutcrackers in autumn 1968

J. N. Hollyer

Plates 59-64

The unprecedented total of some 315 Nutcrackers *Nucifraga caryocatactes* was recorded in Britain in autumn 1968. Before analysing these records, which were briefly summarised in the 'Report on rare birds in Great Britain in 1968' (*Brit. Birds*, 62: 476), it is necessary to review the past status of this species in Britain and Ireland. *The Handbook* (1: 32) mentioned about 50 authentic records of the Slender-billed form *N. c. macrorhynchus* in England, mainly from southern and eastern counties, and three or four each in Wales and Scotland. Six examples of the nominate form were also listed in *The Handbook* (1: 30), but four of these were later rejected among the Hastings Rarities (*Brit. Birds*, 55: 308, 362), the remaining two having been in Cheshire in 1860 and in west Sussex in 1900. More recently, the comments accompanying accepted Nutcracker records have attempted to make topical assessments of the status of this species as a vagrant. In the 'Report on rare birds in Great Britain in 1963' (*Brit. Birds*, 57: 272) it was said to have become very rare here in recent years, but even more interesting was the remark that the dates of the two 1963 records (26th August and 28th September) were unusual. The birds in Scilly on 5th October 1966 and in Kent on 5th September 1967 (*Brit. Birds*, 61: 348-349, 363) prompted the comment that the four records during 1963-67 were all in August-October instead of in winter as in the past.

When it became clear during autumn 1968 that an unusually large number of Nutcrackers was reaching Britain, the Rarities Committee decided to remove it temporarily from the list of species for which a detailed description was required. This did not signify a deterioration in recording standards, but 35 had already been reported by



ordinary members of the public who were not familiar with the procedure for making a field description of a rare bird: like the Waxwing *Bombycilla garrulus*, the Nutcracker is conspicuous and arouses curiosity. Few problems arose in this connection because many birds remained long enough for supporting details to be obtained and some only poorly described were photographed. Almost all records listed in appendix 1 were supported by descriptions which included mention of large size (larger than a Starling *Sturnus vulgaris*), heavily spotted plumage, stout pointed bill and white on the tail and under tail-coverts. Although the invasion extended from the Isles of Scilly to Shetland, not a single report came from Ireland where the species remains unrecorded (*Irish Bird Report*, 1968: 3).

In September 1968 R. P. Bagnall-Oakeley, realising the magnitude of the invasion in Norfolk and Suffolk, appealed for records on the B.B.C. Anglia television programme 'Look East'. This prompt action brought to light many observations and much interesting information about food and behaviour which would otherwise have been lost. Students of the irruption emerged in most countries of northern Europe during September; M. Eriksson and J.-Å. Hansson in Sweden announced their intention to pursue a long-term comprehensive study, while others collected the records in their respective countries for analysis. It was soon realised that the number of records in Britain, though most impressive, was very small compared with those in Sweden, the Baltic States, Germany and the Netherlands. Britain was very much on the western fringe of the eruptive movements and the British records would have to be considered in their proper relation to the European pattern.

In October 1968 a request for records and information about food and behaviour was published (*Brit. Birds*, 61: 474), and county editors and recorders were approached for assistance in collecting records for analysis. Those that had already reached the Rarities Committee were followed up where necessary, and a network of liaison established in order to avoid, or at least minimise, the risk of duplication in recording. Thus the investigation grew; in this paper I have attempted to combine a simple analysis of the British records with an assessment of the Nutcracker irruption of 1968.

#### PAST IRRUPTIONS AND BIOLOGY

The Thick-billed Nutcracker is the subspecies breeding over most of Europe, being numerous in suitable habitats in Russia, Romania, Bulgaria, Yugoslavia, Czechoslovakia, Austria and Switzerland, and rather scarcer in Greece and probably Albania, in Finland, Sweden and Norway and in parts of Germany, north Italy and south-east France. This race is largely resident, though some 'Thick-billed Nutcrackers' from European Russia have also erupted westwards from time to time,

into Finland in 1951, for example. Most of the eruptive movements, however, involve the Slender-billed Nutcrackers which breed in north-east Russia and western Siberia (this race also extends right across north Asia to Kamchatka, the Kuriles, Sakhalin, Japan, northern Manchuria and perhaps Korea). The Slender-billed form and the Thick-billed population of European Russia together have a very similar range to two other eruptive species, the Waxwing and the Crossbill *Loxia curvirostra*.

Irruptions of Nutcrackers into the Kaliningrad area of the Baltic States occurred in nine of the years between 1900 and 1942 (Lack 1954), but only in 1911 does it seem likely that more than one or two reached Britain. As already mentioned, previous British records were of stragglers wandering westwards in winter after an irruption rather than directly linked with movements on the Continent. No previous irruption has been on such a large scale or as widespread as that of 1968. It is not possible to make a direct comparison with the irruption of 1911, as there were many fewer observers and a much less comprehensive recording network at that time, but only six were recorded in that year, in Norfolk, Suffolk, Kent and Buckingham (*Brit. Birds*, 5: 167, 191-192; 7: 261-262; Harrison 1953), as well as one a few miles north of Hastings.

Modern writers, such as Lack (1954) and Dorst (1956), have summarised admirably the work of Formosov (1933), showing how the fortunes of the Slender-billed Nutcracker fluctuate with the cone crop of the Arolla pine *Pinus cembra* on which it feeds. The crop of seeds varies from year to year, and Dorst (1956) stated that 'An invasion occurs whenever an abundant crop (during which the population has increased, due in part to lower mortality in the winter) is followed by a poor year when the birds are driven to seek food elsewhere'. There is some evidence of a poor cone crop in western Siberia in summer 1968 (Professor Dr E. Kumari *in litt.*). It is only necessary to emphasise here that the Slender-billed Nutcracker is a very specialised feeder in the lowland taiga and mountain forest where it is indigenous.

#### THE INVASION OF CONTINENTAL EUROPE

The first Nutcrackers arrived in Germany and the Netherlands in late June, but none was reported from the Baltic States and Poland until July. The flight-lines extended through northern Poland and Germany, and along the Gulf of Finland into Scandinavia. The main influx usually followed two to four weeks after the first arrivals. This pattern is revealed in the summaries for each country below:

**Soviet Baltic States** Singles were seen on the coast from 20th July, with parties of up to five at Kurische Nehrung (formerly Rossitten, north of Kaliningrad) on 26th and Saaremaa Island (Estonia) on 28th. The peak of the irruption was during the first ten days of August, with thousands present throughout the region, especially near the coast. Large numbers were seen during the whole of August,

but in September the passage was less intense and by October small groups were widely scattered. Only singles remained in November and December (Professor Dr E. Kumari).

**Belgium** About 800 were recorded, the first on 21st July. Most records referred to single birds in forested regions inland. Small numbers were reported in August daily from 6th to 16th, but none between 17th and 19th. The main influx began on 20th; at least 30 were then seen daily until 25th and there were further peaks of 20 to 30 on 28th August and 11th September. Numbers fell sharply after 30th September. A party of 14 at Knokke at the end of August was one of the few observations from the coast. Records of single birds were received right through until the late autumn of 1969; the totals increased slightly to about ten in July-August 1969 and again in October-November. The possibility of breeding in Belgium in 1969 is not dismissed (Tricot 1968a, 1968b, 1969).

**Channel Islands** One was seen on Alderney on 13th September.

**Denmark** The first were seen at Laeso Island in July and large flocks were flying NNE at Skagen at the end of August. Of over 100 corpses examined, only a few were considered to be first-year birds (*per* M. Eriksson and J.-Å. Hansson).

**Finland** Large flocks were recorded at Björkö (Viipuri) and Valsörarna in mid August and at several other localities in southern Finland during the following weeks (*per* M. Eriksson and J.-Å. Hansson).

**France** The first arrivals, from 20th July, were at Le Touquet (Pas de Calais), the Baie de la Somme and the inland departments of Seine-et-Oise (two), Seine-et-Marne (three) and Nièvre (one). Numbers remained unchanged during the first ten days of August, but from 11th more were seen in the Pas de Calais, Seine-et-Oise, Saône-et-Loire and Moselle and by the end of August stragglers had reached as far south as Indre, Corrèze and the Bassin d'Arcachon in the Gironde. Many more appeared in September with the largest numbers still in the north, but with greater concentrations west of Paris and in Normandy and single birds south to Aude, Hérault and Alpes Maritimes. The last was found dead and confirmed as belonging to the Slender-billed race. In October there were still over 125 reports in the north and a record of several hundreds flying south on 9th and 10th at Gannat (Allier) on the northern edge of the Massif Central. By December numbers had dropped to about 15 in widely scattered localities and the concentrations in the Massif had disappeared. Apart from the latter, all observations in France referred to single birds or small groups (C. Erard). At Cap Gris Nez Bird Observatory the first was seen on 20th August, with more on 23 dates until 19th October; peaks occurred on 24th August (three or four), from 9th to 13th September (three) and on 19th October (two or three) (A. Gibbs). These peaks reflect the highest daily totals in south-east England over the same period (see fig. 1).

**East Germany** The first were seen from mid July. Nutcrackers were very numerous during the first ten days of August (2,200 reports), but numbers fell to less than 150 at the end of October. Single birds remained in February 1969 (Dr R. Piechocki).

**West Germany** In the Hamburg district the first was seen on 27th June, but it was not until the end of July that there were any large numbers. In all there were 630 reports (of over 1,300 birds), including about 250 in early August, 80 at the end of August and a further peak of 220 at the beginning of September; only four remained at the end of December (J. Wittenberg). In Schleswig-Holstein one report of Nutcrackers on the move in August indicated a marked westerly direction (G. Pfeifer). The first were reported west of the Rhine from 2nd August; there were groups of 10 to 30 in mid August and smaller, fewer and more widely scattered parties at the end of the month (Bruns 1969). On Heligoland the first was seen on 3rd August with a peak of twelve on 8th and then one or two frequently until 13th September: one flew west from Heligoland on 7th August, but most were in



poor condition and remained on the island; eleven corpses were found, all adults (Dr G. Vank). Nutcrackers were reported on the islands of Borkum and Jaegerhain in the North Sea from 5th August and a total of 50 was observed there between 10th and 24th (Dr E. Schoennagel *per* Bruns 1969). Observers in Germany were especially interested in food preferences and feeding behaviour, and a vast amount of interesting information was collected. The crop of one bird contained the bodies of 40 wasps (Vespidae). Extreme tameness was considered a possible way of determining whether individuals were of the Slender-billed race and, in this connection, emphasis was placed on the 'escape distance', the distance any bird flew on being disturbed, a facet of behaviour seldom noted by British observers.

**Netherlands** The first were recorded in the north, one or two at the end of June, but there were more in July and the largest numbers in August. Some 6,000 records were received and over 100 corpses passed to one taxidermist alone (M. J. Tekke). Many were moving in the River Schelde area from August to October (D. A. Vleugel).

**Poland** The first were seen at the beginning of July and the largest numbers from 15th August to the end of September; singles remained through the winter. The measurements of 56 referred them all to the Slender-billed race (Dr S. Strawinski).

**Sweden** On 23rd June one was recorded at Kaitumjaure in Lapland and on 8th July there were 50 at Thorhamns Udde in the province of Blekinge. At the beginning of August the number of records increased and flocks were seen flying south to the north of Lake Vänern. On 11th August about 4,400 were counted flying NNW at Holmön Island. The peak of the invasion was at the end of August, however, with flocks flying mainly south or south-west at Thorhamns Udde, Öland and Lake Vänern. During September the size of the flocks diminished and parties remained static. Numbers decreased gradually throughout the winter of 1968/69. An estimated 90% to 95% of those in Sweden belonged to the Slender-billed race; the remainder were Thick-billed Nutcrackers from European Russia caught up in the irruption (M. Eriksson and J.-Å. Hansson).

**Switzerland** In the Jura region at least one small party associated with local individuals of the Thick-billed race from 21st October and one was trapped in December. It was suggested that a narrow V-shaped area of dark brown between the under tail-coverts and the white tip to the tail is a field-character of the Slender-billed, the Thick-billed having a wide block of dark brown (Wernli 1970).

**Other countries** Austria and Czechoslovakia recorded small numbers and a few appeared in northern Italy (*per* M. Eriksson and J.-Å. Hansson). None was recorded in the Balkans. One was caught and ringed in Portugal in autumn 1968, the only record from the Iberian Peninsula (*per* M. Eriksson and J.-Å. Hansson), and one reached North Africa (*per* G. Pfeifer).

Further afield, Nutcrackers appeared in the Gobi Desert in autumn 1968, indicating that the species erupted eastwards as well as westwards (*per* M. Eriksson and J.-Å. Hansson). No 'flights' of the related Clark's Nutcracker *Nucifraga columbiana* were reported in North America in autumn 1968 (P. Devillers *in litt.*).

#### WEATHER CONDITIONS

In early autumn 1968 an exceptional area of high pressure, providing calm conditions and clear skies, developed over northern Europe. At times it extended as far east as 90°E. In a normal year there is no tendency for such a ridge to develop from north-west Europe to the White Sea in late August; indeed, this period is considered to be the



peak for maritime westerly weather in Britain and Ireland (Lamb 1965). In addition, pressure through this ridge was some 8-16 millibars higher than usual. It is also of interest to note that temperatures in late July and during the first half of August were constantly far below normal in the region from Murmansk to central Europe. Snow was reported several times in the Novaya Zemlya area and on the mainland to the south (H. H. Aslett *in litt.*).

The Siberian Nutcrackers were already making eruptive movements at this time and the premature onset of cold weather may well have been an additional stimulus for a westward exodus.

#### THE IRRUPTION INTO BRITAIN

Favourable weather assisted in bringing the Nutcrackers as far west as Britain in such numbers. Birds arrived mainly while south-east England was linked to the vast area of high pressure over northern Europe. This anticyclonic weather was particularly prevalent in August from 1st to 3rd, on 8th and 11th, and from 23rd to 28th, from 7th to 10th September and on 5th October. These dates are significant when compared with the daily counts shown in fig. 1.

In August the Nutcrackers reached Britain in two clearly separated phases. The first influx, of which about 27 were reported, was restricted to Norfolk, the north-east Suffolk coast and east Kent. The first two reports were from Trunch and Ditchingham, east Norfolk, on 6th, and the third from Denton, Kent, on 7th, all singles. North Atlantic depressions were then affecting only Ireland and western Britain. (Early Pied Flycatchers *Ficedula hypoleuca* and Redstarts *Phoenicurus phoenicurus* reached south-east England with this first phase of Nutcrackers and on 11th August Icterine Warblers *Hippolais icterina* were recorded at several south-eastern bird observatories.) Westerly weather returned to eastern England about 17th and, as a result, the influx slackened to such an extent that no Nutcrackers were reported between 18th and 20th August (see fig. 1).

Phase two, the heavy influx, began on 21st August. Light northerly winds were blowing over much of Britain and conditions in the southern North Sea were fairly calm. Three new Nutcrackers were found on that day: at Kirby Cane, Norfolk; at Hollesley, Suffolk; and at Lerwick, Shetland. On 22nd the latter two were still present, one flew south at Spurn, Yorkshire, at 10.10 BST, singles were found at the northern tip of the Isle of Thanet and at Hemsby Gap, Norfolk, and one was trapped and ringed at Covehithe, Suffolk. The Shetland and Kentish birds were feeding continuously and were still present on 23rd, as were the two in Suffolk. High pressure from the Continent continued to have its effect and, with much of Britain blanketed in fog, the morning of 23rd August brought a fall of Nutcrackers on to the Suffolk coast, mainly in the area between the rivers Deben and Alde.

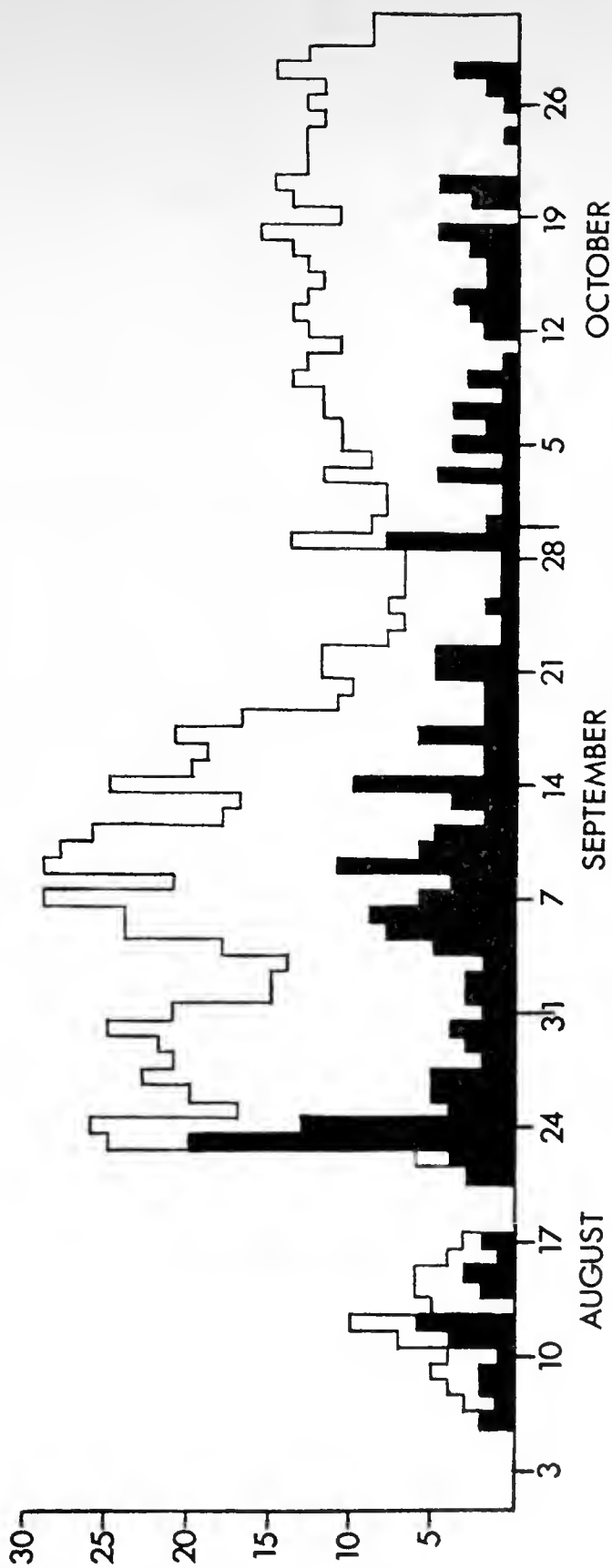


Fig. 1. Daily totals of Nutcrackers *Nucifraga caryocatactes* recorded in Britain during August-October 1968; black columns represent first reports, open columns subsequent day sightings. Records of uncertain date are omitted. Saturdays are marked underneath to show weekend bias

On the same day further ones appeared on the Norfolk coast near Yarmouth and in the Naze area of Essex. On 24th seven or eight more were found in East Anglia and a flock of four was seen in east Kent. Singles were also reported in Berkshire and Surrey. It is certain that at least 35 different individuals arrived in south-east England between 23rd and 25th August, and there were probably many more (see fig. 1).

The effects of the influx of 23rd spread rapidly, with birds moving on beyond their points of landfall. On 25th the daily count dropped from about 25 to 17 with only four in new areas, including one near the Sussex coast and another at the south-western tip of Cornwall. Stragglers reached Hertfordshire and south Wales during the following seven days. From 25th August to 11th September the average number of Nutcrackers seen each day was 22, but the situation became complicated with some individuals remaining in one locality for several days, or even weeks, and fresh arrivals (especially between 5th and 9th September) appearing in adjacent areas.

From 9th September several more were observed on the Channel coast and on the coasts of Lincolnshire and Yorkshire, indicating a spread westwards and northwards: reports came from Dorset on 9th, 11th and 13th, Devon from 13th, the Isles of Scilly on 17th, Lincolnshire from 12th, and Yorkshire from 24th. One Nutcracker on Alderney, Channel Islands, on 13th, and singles seen by A. Gibbs coasting south-west at Cap de la Hague, Normandy, on 8th and Le Conquet, Brittany, on 15th September, provided an interesting parallel to the British records in the south-west.

In eastern England numbers fell sharply from mid September onwards, so that by 26th all the 'residents' of earlier influxes had departed. Between 4th and 9th October Norfolk and Suffolk experienced another small arrival in coastal districts where there had been an absence for several days. The considerable numbers of Nutcrackers in new areas in inland counties were doubtless not new arrivals, as Essex recorded only one in the whole of October and Kent only three. After 29th October records were comparatively few, but it is worth mentioning that eight or nine appeared in new areas following the easterly gales on 14th-16th November. Nutcrackers in Suffolk, Kent and Yorkshire in November apparently had found means of sustaining themselves either in conifer plantations or near gardens where food was provided daily. By the end of the year it is probable that only about ten Nutcrackers remained and three or four of them disappeared in January.

During the first few months of 1969, two established residents in Kent were continually seen, two appeared (or reappeared) in a conifer forest in Yorkshire, three frequented the Wirral in Cheshire and seven wanderers were recorded. One was seen in an entirely new locality in Kent in June and two appeared near the Suffolk coast in July.

Small movements of Nutcrackers were recorded in Schleswig-

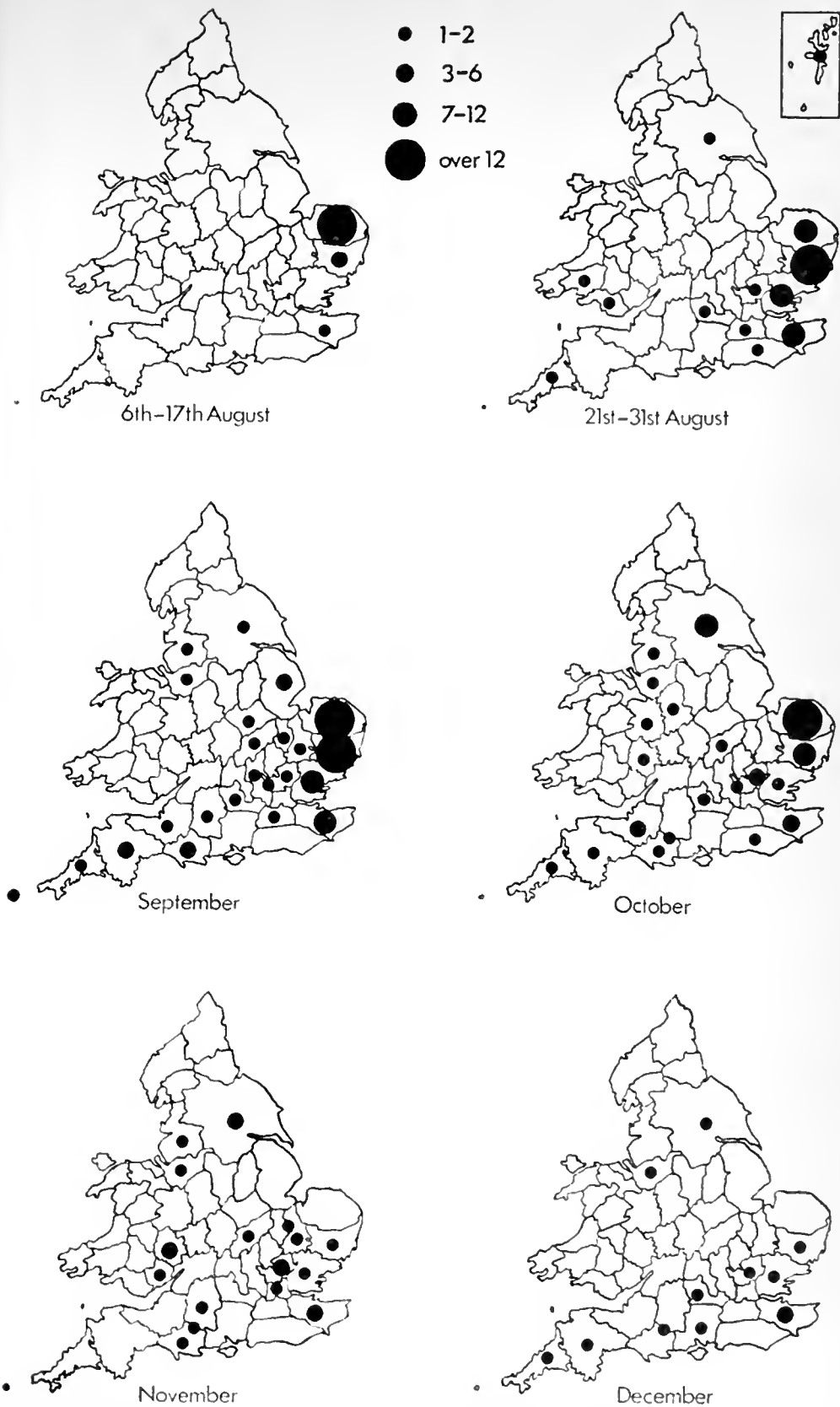


Fig. 2. Distributions by counties of Nutcrackers *Nucifraga caryocatactes* recorded in Britain during various periods in the autumn of 1968



**Table 1.** Minimum totals of Nutcrackers *Nucifraga caryocatactes* in Britain in each of the four principal counties involved and in all others combined during various periods in the autumn of 1968, and in 1969 as a whole, with a calculation of the average number of birds newly reported per day in each period

Period	Norfolk	Suffolk	Essex	Kent	Others	TOTALS	Birds per day
6th-17th August	21	4	0	2	0	27	2.3
21st-31st August	10	27	7	11	11	66	6.0
September	47	41	8	10	32	138	4.3
October	17	11	2	3	34	67	2.0
November	0	2	2	3	26	33	0.8
December	0	2	1	4	10	17	0.4
1969	1	2	0	5	14	22	—

Holstein in autumn 1969 (G. Pfeifer *in litt.*), but only two in England, in Kent and Hampshire in September, are likely to have been associated with these movements.

Table 1 gives the minima present in each of the main counties and in the rest of Britain during various periods of the influx, and fig. 2 shows the distribution by counties during the same periods.

#### PROBLEMS OF RACE AND AGE

Vaurie (1959) aptly described the bill of the Slender-billed form as 'more attenuated'. The gonys of the Thick-billed race is more strongly developed to deal with the tougher food taken (the fruits of hazel *Corylus*). The photographs taken in Britain (a selection of which appears on plates 59-64) depict birds with slim bills, but it is hard to explain why they have the look of the Slender-billed race. Even in the hand, it is not easy to measure the depth of the bill at the angle. The bill measurement must be used in conjunction with the measurements of the extent of the white at the tips of the outermost pair of tail-feathers. As far as can be ascertained from field descriptions, all Nutcrackers

**Table 2.** Measurements of six Nutcrackers *Nucifraga caryocatactes* trapped in Suffolk and Kent in August and September 1968

Localities are all in Suffolk with the exception of Doddington, Kent. All measurements are given in mm. Bill measurements were taken from the feathers except for those in brackets which were from the nostrils. The 'depth' column gives the depth of the bill at the angle. The bird at Covehithe had 25 mm of white from the tip along the shaft of the outermost tail feather

Date	Locality	Observer	Wing	Tail	Tarsus	Bill	Depth
24th August	Tunstall	P. R. Catchpole	190	—	43	50	14
25th August	Covehithe	R. S. Briggs	178	—	41	(41)	—
27th August	Eyke	P. A. Banks	180	—	40	52(41)	—
2nd September	Capel St Andrew	P. A. Banks	187	—	42	49(41)	—
4th September	Doddington	C. Sharr	186	130	41	51(36)	16
7th September	Capel St Andrew	P. A. Banks	173	—	40	49	—

recorded in Britain in 1968 and 1969 were of the Slender-billed form. This is certainly true of all those found dead and of eight of the nine examined in the hand; the ninth's bill measurements were inconclusive. Table 2 gives the measurements of six of those trapped.

Nutcrackers are not easily aged. Thirty-nine (including one trapped) were adults, while only nine (including four trapped) were thought to be first-year birds. Swedish ornithologists state, however, that in August juveniles are indistinguishable in the field from adults (P. O. Swanberg *per* M. Eriksson and J.-Å. Hansson *in litt.*). Age determination is no simple matter, though the glossy black tail and cap are well marked in a mature adult. About 60% of the field descriptions received mention a glossy black tail, so it seems likely that there were more adults than first-years reaching Britain. The dull brownish cap in a first-year individual is well shown in plate 62a. Observers in Suffolk commented on plumage differences in the birds they saw, though these may have been partly due to different ages or stages of moult.

#### HABITAT

Many of the first Nutcrackers in Norfolk and Suffolk frequented pine trees near the sea. Some 70% of all those seen in East Anglia were within five miles of the sea and it is significant that the western half of Suffolk (vice-county 26) had virtually no records. At least 14 frequented open grass verges by roadsides and two were known to have been killed by passing traffic. About 110 visited gardens, while five remained for several days in public parks and two in churchyards. Twenty were feeding on the ground in apple orchards and about 45 were in conifer plantations. Those in October-November in Devon and Yorkshire were in pine forests, the latter being seen again in the same area from February to May 1969. The two in Kent in the winter months favoured a habitat typical of Collared Doves *Streptopelia decaocto*: mature pine trees in close proximity to the gardens where they fed.

#### FOOD

None of the nine Nutcrackers caught in Britain was weighed and in no instance was the gizzard contents of a dead specimen examined; hence any assessment of physical condition is bound to be rather vague and subjective. The one caught at Cap Gris Nez Bird Observatory weighed only 120 gm. Several in East Anglia in August and September were said to be 'in poor condition' or 'light in weight'. There are at least 15 reports of new arrivals 'feeding ravenously'. From mid September onwards half the records concerned birds 'feeding listlessly' or in a poor state of plumage.

Unspecified insect food was frequently recorded. Insects were taken on the ground, from the soil and from verges and pavements, and also from behind the bark of trees, including oaks *Quercus robur* and cedars

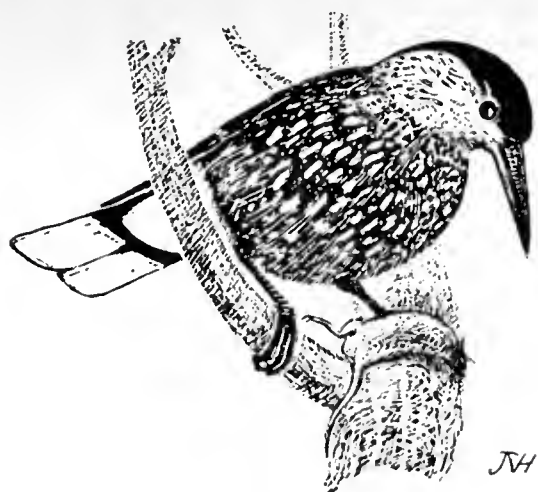


Pulling away the bark from dead trees was frequently observed

*Cedrus spp.*, and from fence posts. There were 32 widely separated reports of probing in cracks in old timber or tearing away bark from decaying trees or old posts in order to find insects and their larvae. One in Lincolnshire was observed working along a row of posts in search of food and three were seen searching compost heaps. There are over 120 reports of digging or probing in the ground. Eight perched on lamp posts or telegraph poles while feeding and, in this connection, it is interesting to note three independent observations of persistent pecking at concrete posts, possibly suggesting that the birds in question were unfamiliar with any stony material in this form.

Identified insects included two reports of grasshoppers (Orthoptera), four of beetles (Coleoptera), four each of bees (Hymenoptera) and ants (Formicidae), one suspected of an earwig (Forficulidae) and at least two of crane-fly larvae (Tipulidae). Two Nutcrackers in Kent and Yorkshire dug out the nests of wasps, while three in Norfolk and Suffolk opened up those of ants. Among other invertebrates, there was one report of a slug (Gastropoda) being eaten.

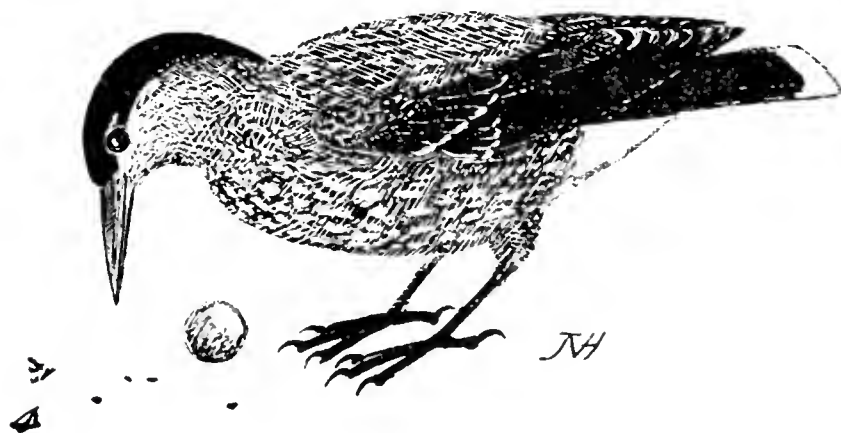
Small mammals were recorded seven times: three unidentified rodents (Rodentia), two House Mice *Mus musculus*, two Brown Rats *Rattus norvegicus* and two voles (Microtidae). Nutcrackers in Kent and Norfolk were seen to chase and catch a live rodent, fly with it to a tree, wedge the animal in a fork of a branch and hammer at it with the beak in the manner of woodpeckers (Picidae) until it was dead. Flesh was then torn from the body in strips and eaten.



A Brown Rat positioned on an 'anvil' in the fork of a tree

House Sparrows *Passer domesticus* were the only birds taken, with records from Norfolk, Suffolk and Shetland. The Lerwick Nutcracker took at least three and ate one entirely, though it is not known for certain whether it had killed them. Another, in Norfolk, was seen to decapitate a freshly dead House Sparrow, split open its skull, as though it were a nut, and eat the contents; once again most of the corpse was consumed. One in Suffolk returned three times to remove dead House Sparrows from wire covering a thatched roof. Incidentally, Bechstein (1881) was an early writer who remarked that captive Nutcrackers have a fondness for carrion.

There were about 60 records of Nutcrackers feeding on seeds and fruits. Shelled almond, hazel, walnut and peanut were taken from bird tables (three or four records of each). Acorns, collected from the ground, were recorded six times, the berries of elder *Sambucus nigra* three times, blackberries *Rubus fruticosus* 25 times and once the haw-like fruit of an ornamental tree. The flock of four at Dover in late



Fallen apples were broken up with two or three pecks



August was feeding on a fodder crop of tic-beans.

Comparatively few of the early observations concerned Nutcrackers hacking at bread, but this and discarded household fat figured more frequently in their diet from October onwards, with about a dozen records. In Kent fat was carried off in large quantities and wedged in cracks in the bark of trees, while in Hampshire food was tucked away into natural crevices in the ground and buried under plants; sometimes a hole was dug with open mandibles, the food placed inside and then covered with a leaf. One in Kent in the winter was fortunate in its choice of a garden behind a butcher's shop: this individual lived on a daily diet of mince from November 1968 to autumn 1969.

Drinking was seldom observed; four were watched drinking from puddles and one from a graveside vase. The manner of drinking was noted by two separate observers as like that of a Woodpigeon *Columba palumbus*, which seems surprising, but in Germany also Bettmann (in Bruns *et al.* 1969) commented that the species drank with a pigeon-like sucking and not like most other birds with a scooping action.

#### HABITS AND BEHAVIOUR

Forty-eight of the Nutcrackers were exceptionally tame, allowing an approach to less than two metres (three or four of them to less than half a metre). The rest of the 120 or so that were observed on the ground were considered unusually tame. According to the reports received, only nine called and only two did so frequently and repeatedly. It is interesting to note that many of the very tame individuals and some of those that stayed in one small area for one to three weeks were silent. Two probable Nutcrackers in Herefordshire and Kent, not included in the list of accepted records (appendix 1), were heard and not seen. The call has been written as *krark* or *kraaaa*, low-pitched, harsh and far-carrying, but less grating in tone than that of a Jay *Garrulus glandarius*. This call was often repeated five or six times with the fourth note slightly different. The call was also described as a throaty *yank* and likened to the noise created by the sharpening of a saw.

Seven Nutcrackers were mobbed by other passerines: three by Swallows *Hirundo rustica*, three by Mistle Thrushes *Turdus viscivorus* and one by an unidentified species. Four were seen to be aggressive towards other birds. One was stooped at by a Hobby *Falco subbuteo*.

Many observers described the springy gait and bounding hops of Nutcrackers on the ground. In spite of their large size and somewhat clumsy appearance on the ground, many were deft at extracting grubs. Legs and wing covers were removed from beetles before they were eaten and bees were caught with ease. Dropping to the ground after insects in the manner of a shrike *Lanius sp* was observed, and the upward swoop to a perch was also reminiscent of that genus. A habit of wiping the beak on a branch, alternately on one side then

on the other, was recorded. Two were seen going to roost in pine trees and one visited the old nest of a Carrion Crow *Corvus corone*.

Nutcrackers in flight were likened to giant Hoopoes *Upupa epops*, looking front-heavy and with a jerky motion of the wings. A Jay-like, leisurely, irregular action was frequently described, while the short flight was often noted as undulating.

#### CONCLUSIONS

All countries of northern Europe reported a dramatic decline in numbers of Nutcrackers from the end of October 1968. The fact that several of those seen in Britain in November and December were in a dilapidated state of plumage seems to indicate that they were unable to sustain themselves indefinitely on insects and carrion. Some element vitally important to Nutcrackers is lacking in the biotopes of western Europe. Competitive feeding with numerous other passerine species, coupled with a lack of Arolla pine seeds, evidently proves hazardous even for so large a bird. At this point the reason for such eruptions again becomes important. Whether it be surplus of population or lack of food that is the primary cause, Svärdson (1957) aptly described the eruptions of the Siberian Nutcracker as 'death-wanderings'.

Had large numbers of Nutcrackers moved into arboreal regions of inland Britain, it is likely that the extremely cold weather of early February 1969 would have caused a spate of reports from near habitations as they foraged in search of food. In fact, there were only four such records, widely scattered, involving six birds.

#### ACKNOWLEDGEMENTS

Only the willing co-operation of many observers and of the county editors and recorders concerned has enabled this analysis to be made, and my grateful thanks go to them all, but space permits no more than a few to be mentioned by name (though individual observers are acknowledged in the detailed list of records). In particular, R. P. Bagnall-Oakeley collected many notes from East Anglia (the centre of the influx), as well as giving encouragement and assisting with several problems; H. E. Axell and P. A. Banks helped with perspicacious summaries for Suffolk; and I must also pick out W. H. Payn (Suffolk), M. J. Seago (Norfolk) and Mr and Mrs J. K. Weston (Essex). I am equally grateful to H. H. Aslett of the Meteorological Office, R. H. Dennis, Dr J. M. Harrison and Major R. F. Rutledge who all went to considerable trouble to answer my questions, to Dr D. W. Snow for providing the opportunity to examine the collection of skins at the British Museum (Natural History) and to D. C. H. Worsfold for translations from the German. Ornithologists from other European countries supplied valuable information (their names appear in the appropriate section of the text) and I thank them too, especially M. Eriksson and J.-Å. Hansson. F. R. Smith gave unfailing support at a time when the number of records was becoming very large and the task of collection and analysis seemed daunting. Last, but by no means least, I. J. Ferguson-Lees supplied a list of overseas contacts, lent various journals, co-ordinated the exchange of information between countries and was of great assistance during the early stages of writing, while P. F. Bonham spent much time in preparing my final draft for the printers and in following up a number of discrepancies and queries.

## SUMMARY

About 315 Nutcrackers *Nucifraga caryocatactes* were acceptably reported in Britain in autumn 1968. This was approximately five times the sum total of all previous British records, but movements on the Continent were even more remarkable, particularly around the Baltic and through Germany and the Netherlands. The origins and past history of such irruptions are discussed and it is pointed out that 1911 was the only previous year in which more than one or two Nutcrackers were recorded in Britain. The numbers in other European countries in autumn 1968 are briefly summarised and it is shown that one even reached North Africa, while occurrences in the Gobi Desert indicated that the species also erupted eastwards.

The weather in August 1968 probably assisted the Nutcrackers in crossing the North Sea. A chronological discussion of the British records shows that most of the birds arrived on the east coast between Dover and the Wash; nevertheless, some of the earliest reports came from as far afield as Cornwall, south Wales, Shetland and Yorkshire. The invasion was much more widespread in September and October, but the largest numbers were still in the east and near the coast. Although the total fell sharply at the end of October, some individuals remained through to autumn 1969 when, in addition, two new records may have been associated with further movements reported on the Continent at that time. A complete list of records of Nutcrackers in Britain in 1968 and 1969 is given in appendix 1. It should be noted that none was known to reach Ireland and there is still no record of this species in that country.

It is considered that all Nutcrackers reaching Britain were of the Slender-billed race *N. c. macrorhynchus* of north-east Russia and Siberia, and about 60% of those described in detail had the glossy black caps, flight feathers and tails of adults. Habitats included gardens, public parks, churchyards, conifer plantations and, in at least 14 cases, roadside verges. Some at least of the Nutcrackers arrived in a weak condition. Many fed on insects, probing for them in the ground, behind the bark of trees and in cracks in timber and other posts, but some also ate small mammals, sparrows, carrion, seeds, berries and various forms of domestic waste from bread and household fat to mincemeat; food storage was recorded in two areas. Tameness, calls, relations with other species and various aspects of behaviour are also summarised. It is suggested that many died because they were unable to find sufficient suitable food.

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## Appendix 1. Accepted records of Nutcrackers in Britain in 1968-69

The following observers, whose names each appear more than four times, are shown in the list by initials: H. E. Axell, R. P. Bagnall-Oakeley, P. A. Banks and G. J. Jobson. To save space, the month is always omitted when it is the same as in the previous record.

**Berkshire:** Crowthorne, 24th August (Mr and Mrs J. A. Huggett). Windsor Great Park, found dead, 10th September (*per* M. D. Collins); specimen now in Reading Museum. Pangbourne, two, 3rd October (E. V. Robinson). Cholsey, two or three, late December to early January 1969 (*per* W. D. Campbell).

**Buckinghamshire:** Penn, 22nd September (Mrs S. M. Armstrong, Mrs P. M. Shaw).

**Buckinghamshire/Hertfordshire:** near Berkhamsted, September to 6th October (Mrs B. Carr *per* H. C. Dunk).

**Cambridgeshire:** Wimblington, March, 6th to 11th September (Mrs M. Brooks *per* R.P.B.-O.). Whittlesey, 9th and 10th (A. J. Campion). Wisbech St Mary, 16th November (Mr Nicholson).

**Cambridgeshire/Huntingdonshire:** Dogsthorpe, 8th November (*per* J. N. Dymond).

**Carmarthenshire:** near Henllan, Llandysul, two, 26th to 31st August (Mr and Mrs W. L. Rees).

**Cheshire:** Weaverham, 22nd September (C. and H. Allen, J. Bracegirdle). Tatton Park, 15th October (*per* Dr R. J. Raines). Congleton, 1st November (M. C. Jarratt). Saughall, one or two, 6th December (*per* Dr R. J. Raines).

**Cornwall:** Porthgwarra, 25th August (S. R. Eddy, E. Griffiths, S. C. Madge *et al.*). Feock, 28th September (Mr and Mrs B. and Miss M. Thomson). Hendra, Goonhilly Downs, 6th October (Lt-Commander R. A. Thurston). Par, 13th (D. F. Musson). Portloe, 2nd December (D. F. Musson).

**Devon:** Seaton, 13th September (Mrs M. T. Holmes-Gore); two, 23rd (Mrs K. B. Jepson). Wrangaton, 22nd (Mr and Mrs L. M. Leakey). Eggesford Forest, Chawleigh, 21st to 26th October (J. Niles, Mr Peniston *et al.*). Torquay, 28th December (A. Radford).

**Dorset:** near Encombe House, Isle of Purbeck, 9th September and for a few days subsequently (S. P. W. Corbett, B. P. Pickess *et al.*). Portland Bill, flying south apparently out to sea, 11th (G. Beakes, P. L. Garvey). Brownsea Island, 13th to 21st (A. T. Bromby, A. J. Wise *et al.*). Morden, Wareham, 20th (M. V. Tuck). Little Minterne Hill, Cerne Abbas, 20th and on many dates between 6th October and 9th November (J. C. Swift, Dr D. J. Godfrey *et al.*) (plate 63a). Netherbury, Bridport, 29th September (J. K. Newsome Davis).

**Dorset/Wiltshire:** Tollard Royal, 21st October to 15th January 1969 (R. C. Burt, R. J. J. Hunt).



**Essex:** Parkeston, 23rd August (D. Heath). Walton-on-the-Naze, two, 23rd to 2nd September (R. M. Clarke, G. Mills, J. K. and Mrs D. J. Weston *et al.*). Brightlingsea, 26th August (H. and Mrs E. C. F. Ward). Dovercourt, 27th (P. Bennett, P. Birchnall, J. Dale). East Mersea, 27th to 3rd September (T. Bispham, E. M. Dence, H. Disney *et al.*). West Mersea, before 2nd September (A. C. Jower *per* T. Bispham). Little Oakley, 5th (G. J. Gardener *per* R.P.B.-O.); 7th (Mrs A. M., Miss D. M. and G. Keating). Dedham, 7th (Mrs F. M. L. Nuttall). Great Yeldham, 10th (G. F. Cook). Brentwood, from 14th for about a month (R. D. Bungay, Miss M. Whatley). Benfleet, 16th (T. L. Spanton); 18th (*per* H. R. Tutt). Thrushesbush, Harlow, 3rd and 4th October (A. and Mrs M. Edmunds). Beaumont-cum-Moze, Clacton-on-Sea, 15th November (H. McSweeney). Point Clear, St Osyth, 24th (R. G. Stratford). Shenfield, 8th December (Mrs H. M. Smith *per* A. P. Simes).

**Glamorgan:** Whiteford Plantation, Gower, 30th August (A. F. and H. A. Slatter).

**Hampshire:** Fordingbridge, 6th to 28th December, when found dead (Dr J. S. Ash, B. King *et al.*).

**Herefordshire:** Hereford, 20th October (Mrs M. Jones).

**Hertfordshire:** Hitchin, two, 29th and 30th August (A. E. Norriss). Letty Green, 9th September to 13th October (*per* T. W. Gladwin). Bramfield Forest, 11th September (W. Nicholls, R. Young). Rothamsted Park, Harpenden, 3rd October (Dr J. J. M. Flegg). Near Pirton, 5th and for several days subsequently (Miss J. Franklin). Near Hexton, early October to 3rd November (*per* A. E. Norriss). Near Brookmans Park, 10th November (B. L. Sage). Watford, November (*per* A. J. Endean). Digs-well, 19th and 20th December (M. Lee).

**Huntingdonshire:** Upwood, 11th September (R. C. Green *per* R.P.B.-O.).

**Kent:** Denton, 7th August (Miss D. A. C. Long). Quex Park, Birchington, 9th (J. Halliday); another, 25th to 3rd September (J. Halliday, D. F. Harle, J. Websper *et al.*) and the same bird, Westwood, Margate, 4th to 7th September (D. C. H. Worsfold). Foreness Point, Margate, 22nd and 23rd August (Dr A. D. Prowse). Dover, four together, 24th (F. R. Fisher). Broadstairs, 26th and 27th (Miss L. F. Butcher). Sandwich, 26th to 31st (D. F. Harle); 7th and 18th September (D. M. Batchelor); 7th October (D. L. and M. Davenport). Mersham, Ashford, 28th August (Lord Brabourne *per* D. A. Burkett). Chalk, Gravesend, 28th (T. E. Bowley). Doddington, trapped and ringed, 30th to 11th September (B. Hawkes, C. Sharr) (plate 59). Worth, 1st September (Mr and Mrs J. N. Hollyer). Fordwich, 2nd (J. M. Foad). Hoath and East Blean Woods, 3rd and 5th (R. G. Pitt). Eastling, 11th (B. Hawkes). Bicknor, 17th (D. A. Burkett). Nonnington, on three dates between 21st and 30th (Mrs J. A. Woodrow). Gillingham, 29th (*per* W. F. A. Buck); 10th and 14th December (Mr and Mrs T. Robinson). Tunbridge Wells, 14th to 20th October (Miss A. Grasemann). High Halstow, 24th (C. J. Cox, Dr J. J. M. Flegg). Deal, 2nd to 4th November (F. Knight). Bearsted, 16th November 1968 to autumn 1969 (Mrs M. W. Hayes *et al.*). Maidstone, 23rd November to 5th March 1969 (Miss D. M. Brett, E. G. Philp *et al.*). Lenham, 4th December (M. E. Kuyken).

**Lancashire:** Stalmine, Fleetwood, 26th September to 12th November (J. Porter, G. Stirzaker, J. E. Warburton) and probably the same bird, Rossall, Fleetwood, 3rd October (*per* R. A. Cadman). Worsley, 13th October (L. Baird).

**Leicestershire:** Beacon Hill, Charnwood Forest, 8th September (*per* Leicester Museum) and 15th (F. E. and M. Wainwright).

**Lincolnshire:** Theddlethorpe, 12th September (R. K. Norman). Gibraltar Point, 17th (R. B. Wilkinson). Sutton-on-Sea, 17th (A. J. Raithby).

**Middlesex:** Hendon Park Cemetery, 2nd November (Professor E. H. Warmington). Mill Hill School, 20th (Professor E. H. Warmington).

**Monmouthshire:** Llanhilleth, 12th November (*per* W. G. Lewis).

**Norfolk:** FIRST PHASE (6TH TO 17TH AUGUST): Trunch, 6th to 8th (P. Shells, D. and R. Skelton). Ditchingham, 6th to 16th (Miss D. Cheyne). Wells/Holkham, two or three, 8th to 10th one of which found dead, 10th (now in the Castle Museum, Norwich) and one to 13th (A. Greensmith, R. J. Johns, E. T. Welland *et al.*). Happisburgh, 10th to 17th (Mrs A. Catnach, J. Risebrow). Holme, south from sea, 11th (H. Insley); another, 12th (B. Curtis). Thornham, 11th (R. J. Johns). Kelling, 12th to 16th (*per* R.P.B.-O.). Great Snoring, 12th (R.P.B.-O.). Hockham, 12th (Mr Cox *per* J. Goldsmith). Gayton Thorpe, 12th (*per* R.P.B.-O.). East Wretham, 12th (C. Wilson). Caister-on-Sea, found dead, 14th (P. R. Allard); specimen now in the Castle Museum, Norwich. Taverham, 14th (R.P.B.-O.) (plates 60a-61). Gorleston, three, 15th (*per* P. J. Trett). Rollesby, trapped and released, 16th (D. and K. Lambert). North Creak, 17th (M. S. Egar). Titchwell, adult, found dead, 17th (R.P.B.-O.).

SECOND PHASE (FROM 21ST AUGUST): Kirby Cane, Bungay, 21st (A. J. Bloomfield *per* R.P.B.-O.). Hemsby Gap, 22nd and 23rd (*per* P. J. Trett). Gorleston, two, 23rd (*per* P. R. Allard). Brancaster golf course, 24th (R. Kimber). Wells/Holkham, three 27th, two 31st (K. and Mrs E. M. P. Allsopp). Bircham Newton, 30th (Mrs Allen). Holme, 31st (M. J. Warren). SEPTEMBER: Wells/Holkham, in from sea, 1st (R. J. Johns); 19th (*per* R.P.B.-O.). Titchwell, 1st (T. Marshall). Watton, 2nd (*per* G. Jessup). Hemsby, 2nd to 5th (E. R. Hammond *per* E. A. Ellis). Weybourne, in from sea, 4th (*per* R.P.B.-O.). Mundesley, 5th (*per* R.P.B.-O.). Overstrand, 5th (*per* R.P.B.-O.). Hindolveston, 5th and 11th (*per* R.P.B.-O.). Raynham, 5th (*per* R.P.B.-O.); 11th (W. F. Bishop). Wells, newly arrived on beach, 5th (*per* R.P.B.-O.). Fowl Mere, Breckland, 6th (G. Jessup). Dersingham, 6th to 22nd (K. and Mrs E. M. P. Allsopp, R. Berry, O. Laugharne *et al.*) (plate 60b). Felbrigg Hall, 7th (*per* G. Jessup). North Elmham, 8th (*per* R.P.B.-O.). Baringham, adult, found dead, 8th (*per* R.P.B.-O.). Gorleston, 8th and 9th (*per* P. J. Trett). Somerton, 9th (*per* R.P.B.-O.). Holme, first-year, trapped and ringed, 9th (H. Insley). Great Yarmouth, three, 9th to 16th (P. R. Allard, T. E. Boulton, P. J. Trett). Horsford rifle range, 10th (F. E. D. Drake-Briscoe). Sheringham, 10th to 12th (R. A. Richardson). Shouldham Thorpe, 10th to 12th (*per* M. J. Seago). Holt, 12th (R.P.B.-O.). Bacons-  
thorpe, shot, 13th (*per* R.P.B.-O.). Caister-on-Sea, six 14th, one 16th (*per* M. J. Seago). Sea Palling, 15th (*per* R.P.B.-O.). Fincham, 15th to 19th (Mr Hipperson *per* R.P.B.-O.). Cley, 16th and 17th (W. F. Bishop); two, 29th (R. H. Rounce). Bunwell, two, 17th (Old Buckenham Secondary Modern School). Winterton, 27th (Dr R. A. F. Cox). Wheatfen, 29th (E. A. Ellis). South Wootton, 29th (Miss T. E. Ward). Horsey, two, 29th (G. Crees). Terrington, 30th (M. Clark). South Creak, 30th (T. Easter). OCTOBER: Horsey, 3rd (G. Crees). Great Yarmouth, 4th (P. R. Allard). Thorpe, Norwich, 5th (R. G. Cooper). Gorleston, 5th and 6th (B. G. Cheshire). Sea Palling, 6th to 12th (R.P.B.-O.). Cromer, with ring on right leg, 9th (Miss M. J. Gates). Knapton, 9th and 10th (Mrs E. P. May). Caister-on-Sea, 10th (R.P.B.-O.). Fleggburgh, 12th (*per* M. J. Seago). East Runton, 14th (S. B. Arnold). Ludham, 17th (R.P.B.-O.). North Creak, 18th (H. E. Shalman). Blakeney, 21st and 28th (H. Hunt). Hickling, four, 28th and 29th (R. W. Sankey).

**Northamptonshire:** Overstone, 25th September (E. Roberts). Moulton, 26th October (H. J. Phillips). Ecton sewage farm, two, 14th November (R. Felton); one, 16th (R. Felton, F. D. Payne, N. Tysoe).

**Scilly:** Tresco, 17th and 20th September (D. B. Hunt).

**Shetland:** Lerwick, 21st to 23rd August (D. Courts, J. Gray) (plate 64b).

**Shropshire:** Acton Reynald, two, 21st October (A. J. Smith). Near Diddlebury, Corve Dale, four, 1st November (Mrs A. Dykes). All Stretton, two, 3rd (Mrs N. Heaton).

**Somerset:** Portishead, 11th September (S. E. Hedges). Ilminster, 1st October (Miss P. Maidlow). Wootton Courtenay, 3rd to 23rd (Mrs D. S. Evans, N. Lavender, D. A. Wilson). Near Athelney, shot, 8th (R. K. Banfield, Mrs E. M. Powell); specimen

preserved. Near Ilchester, 13th (R. J. Lewis). Minehead, 27th (Mrs W. F. Preedy).

**Staffordshire:** Stapenhill, Burton-upon-Trent, 27th and 28th October (G. V. and S. Jackson).

**Suffolk:** FIRST PHASE (6TH TO 17TH AUGUST): Frostenden, caught in weak condition, 9th, later died (J. J. Buxton, J. B. Holmes, L. Wright *et al.*) (plate 62a). Aldeburgh, 11th (R. J. Holloman). Corton, 11th to 14th (F. E. and N. Muddeman). Fritton, about 12th (*per* P.A.B.). SECOND PHASE (FROM 21ST AUGUST): Hollesley, 21st to 31st, two together 24th to 27th (G. J. J., W. H. Ramsay). Covehithe, adult, trapped and ringed, 22nd to 15th September (G. B. G. Benson, R. S. Briggs *et al.*) (plate 62b); another adjacent, 30th to 7th September (J. C. Barker, P. W. J. Findlay, D. A. Riley). Leiston, 23rd to 30th August (Mrs M. Grant *per* R.P.B.-O.). Tunstall, two 23rd, one being trapped and ringed on 24th (P.A.B., P. R. Catchpole). Eyke, six from 23rd, one of which, considered first-year, trapped and ringed 27th, this bird remaining until 30th (P.A.B.). Rendlesham, four, 23rd (P.A.B.). Capel St Andrew, trapped and ringed, 23rd to 7th September (P.A.B.). Sudbourne, 23rd and 26th August (P.A.B.). Butley, 24th (N. Pike). Minsmere, two 24th, one 31st (*per* H.E.A.). Boyton, two or three, 24th to 5th September (F. Royle-Bantoft). Martlesham, 25th August (A. Burnell). Dunwich, 29th (P.A.B.). Blythburgh, 31st to 7th September (J. C. Barker, P. W. J. Findlay, D. A. Riley). SEPTEMBER: Chillesford, 3rd, 4th and 10th (*per* P.A.B.). Bromeswell, before 4th, and on 10th (General Sir I. Jacob). Covehithe, in addition to those remaining from August, two, 4th and 5th (H.E.A.). Benacre, 4th (G. J. Batchelor, D. A. Bryant, J. E. Moody). Minsmere, 4th, 7th and 21st (H.E.A.). Capel St Andrew, in addition to that remaining from August, two, one trapped and ringed, 5th to 9th (P.A.B.). Theberton, five or six, 6th to 18th (Mrs J. M. Axell, Miss C. Houghton, Mrs M. Waller *et al.*). Leiston, 6th to 10th (Mr and Mrs G. Barker). Sizewell, 7th (*per* H.E.A.). Hollesley, two 7th, one 8th (R. J. Copping, G. J. J.). Stutton, Ipswich, 9th (S. Good *per* R.P.B.-O.). Oulton Broad, Lowestoft, 9th (*per* B. J. Brown). Trimley St Mary, 9th to 11th (Mrs J. Smith). Felixstowe, two, early September, one found dead 12th (*per* G. J. J.). Aldringham, 13th (Mrs H. Henry, E. Mayhew). Westleton, 14th (Mr and Mrs A. J. Barrett). Corton, two 14th, one 19th and 20th (Mrs E. H. Ladbroke, R. Weston). Dunwich, 18th (Dr and Mrs Ives). Kelsale, 19th (R. E. Turberfield). Walberswick, 21st (G. B. G. Benson). Near Blythburgh, 21st (Mrs R. D. Butterworth). Reydon, 22nd (*per* B. J. Brown). Aldeburgh, 22nd to 24th (N. Whitehead). Butley, early September and 25th (P.A.B.). Waldringfield, September (*per* P.A.B.). Denham, Eye, September (N. Knights *per* Miss M. L. Nixon). OCTOBER: Leavenheath, Nayland, 5th (Mrs S. Samuelson). Tunstall, 9th (P.A.B.). Minsmere, 12th, 15th, 16th and 26th (H.E.A., G. J. J.). Chillesford, 14th (*per* P.A.B.). Hemingstone, 15th and 16th (Mrs A. Watson). Orford, 16th to 18th (Mrs J. Holyfield). Butley, two, 18th (Mrs P. A. Banks). Carlton Colville, 18th (R. S. Briggs). Leiston, two, 20th (R. J. Holloman). NOVEMBER AND DECEMBER: Tuddenham, Ipswich, 16th November to 28th December (Mrs P. Beckett *per* R.P.B.-O.). Herringfleet, 19th to 21st November (H. E. Jenner *et al.*). Orford, late December (S. F. Holyfield).

**Surrey:** South Croydon, on five dates from 24th August to 7th September (Miss B. M. Pascoe-Williams). Headley, Leatherhead, 10th, 22nd and 26th September (H. W. Mackworth-Praed, E. D. Urquhart *et al.*).

**Sussex:** Hailsham, trapped and ringed, 25th to 31st August (L. Cattlin, N. A. G. Lord, K. Verrall *et al.*) (plate 63b). Beachy Head, flying west, 2nd October (R. H. and Mrs L. H. Charlwood). Near Coldwaltham, found dead (probably shot), thought to be first-year female, 16th (*per* Major W. W. A. Phillips); specimen now in Bognor Museum.

**Wiltshire:** between Warminster and Shaftesbury, 21st September (P. Rossiter). Coombe Bissett, November (*per* R. J. J. Hunt).



**Yorkshire:** Spurn, flying south, 22nd August (B. R. Spence, A. W. Wallis *et al.*); again flying south, 24th September (R. J. B. Jackson, B. Pepper, J. Smith *et al.*); yet again flying south, 14th October (B. R. Spence). Sewerby, 25th September to early November (H. O. Bunce, P. Robson, A. J. Wallis *et al.*) (plate 64a). Wykeham Forest, one to three, 7th October to end of November, and two together from 25th February to at least 4th May 1969 (R. H. Appleby, J. W. Robinson, A. J. Wallis). Flamborough, two 17th October, one from 18th to 17th November, when found dead (H. O. Bunce, J. Hall, M. Smales).

The following accepted records are of Nutcrackers seen only in 1969 (some 1969 records of individuals remaining over from 1968 are included in the preceding section):

**Cheshire:** Frankby, Wirral, three, 1st February (D. and T. Carroll), following unsubstantiated reports of one or two at the same locality in late 1968 (*per* Dr R. J. Raines).

**Devon:** Paignton, 23rd January (Miss R. Sutton).

**Hampshire:** Osborne, Isle of Wight, 9th January (J. Stafford). Brighstone, Isle of Wight, 14th and 20th February (Mrs L. Stafford). Hurstbourne Tarrant and Stoke, late September to 24th November (Miss Pentland, Brigadier E. C. L. Simson, Miss L. I. Wren *et al.*).

**Kent:** Minster, Isle of Sheppey, 9th February (*per* D. A. Burkett). Thornton Wood, Canterbury, 22nd to 25th June (D. F. Harle, J. N. Hollyer). Dungeness, 25th and 27th September (R. J. Burness, J. D. Hook, M. Rogers *et al.*).

**Lincolnshire:** Metheringham, 9th April (J. S. Mighell).

**Norfolk:** Holkham, 11th January (R.P.B.-O.).

**Suffolk:** Hinton, two, one shot, 29th July (P. Muttit *per* G.J.J., D. J. Pearson).

**Yorkshire:** Barnsley, 7th February (R. L. Kaye).





## Obituaries

Norman Frederick Ticehurst, OBE, MB, BCh, FRCS

(1873-1969)

It is now more than a year since Dr Norman Ticehurst passed away in a nursing home at St Leonards-on-Sea, Sussex, on 5th December 1969, at the great age of 96 years. He had had such a long life that none of his contemporaries remained and there are few people today able to do justice to his distinguished careers in both medicine and ornithology. Even now this notice draws heavily on those which have been published elsewhere and we have not found any more recent photograph than the one reproduced in *The Ibis* (112: plate 2) and *The Hastings and East Sussex Naturalist* (xi: facing page 1) which was taken over 40 years ago. His name was closely associated with *British Birds* for half a century: in 1909 he was appointed one of the editors along with the Reverend F. C. R. Jourdain, W. P. Pycraft and, of course, H. F. Witherby who was his exact contemporary, and he was fully involved with the publication of the journal at all stages until he became an honorary editor in 1959.

Norman Ticehurst was educated at Tonbridge School and Clare College, Cambridge, where he became a Fellow of the Royal College of Surgeons in 1902 and gained his M.B. and B.Ch. in 1903. He returned to Hastings to join his father and his brother, Dr Claude B. Ticehurst, in general practice; his grandfather had already practised in Hastings, and, later, Norman's elder son, Robert, was to represent the fourth generation in the medical profession there. In 1904 Norman joined the surgical staff of the East Sussex Hospital (later the Royal East Sussex Hospital). He worked there as a general practitioner surgeon until 1938 and again during the 1939-45 war, building up a large surgical practice and earning the affectionate regard and gratitude of a wide circle of patients. He was appointed an Officer of the British Empire for his work at the Normanhurst Auxiliary Military Hospital at Battle during the 1914-18 war.

In 1894, at 21, he was elected a member of the British Ornithologists' Union (his membership thus lasting a record 75 years) and in 1906 was one of the founders of the B.O.U. Migration Committee, later acting as secretary from 1910 to 1914; he served on the B.O.U. Council from 1911 to 1914 and as a vice-president from 1959 to 1962. He joined the Hastings and St Leonards Natural History Society in 1894 and was recorder of birds from 1925 to 1963, as well as editor of *The Hastings and East Sussex Naturalist* for the last 24 years of that

period. At his death he was also an honorary life vice-president of the Kent Ornithological Society.

In 1907, in the first volume of *British Birds*, he published a paper on the systematics of the Yellow Wagtail. His other major papers in this journal were on the distribution of the Nightingale (1911, with Jourdain) and the breeding behaviour of that species (1912), the ageing and moults of the Partridge (1912) and Red-legged Partridge (1913), the birds of Bardsey Island (1919-20) and, later, on the effects of the severe winters of 1939/40 (with Witherby) and 1946/47 (with P. H. T. Hartley). But to select a few gives a false impression: in all, he contributed to *British Birds* some 30 papers, 85 notes and 13 reviews over a period extending from the Edwardian era into the 1950's.

His monumental *A History of the Birds of Kent* (1909) remained the standard work on that county for 44 years. He was one of the authors, with Ernst Hartert and others, of the detailed *Handlist of British Birds* (1912), the forerunner of the modern 'Check-list'. His next major work was as one of the editors of *A Practical Handbook of British Birds* (1919-24) with Witherby, Jourdain, Hartert, Miss Annie C. Jackson (Mrs R. Meinertzhagen) and Charles Oldham. His enduring interest in bird migration, fostered by his service on the B.O.U. Migration Committee, was reflected in some 13 papers and 60 notes in this journal on the migrations and distributions of British birds and on the occurrences of rarities. Later, still in the vanguard of British ornithology, he wrote the sections on 'Migration' and with Jourdain assisted Witherby over the sections on 'Distribution' (British Isles) in *The Handbook of British Birds* (1938-41).

In the early 1920's he became interested in the historical aspects of ornithology, particularly in south-east England, and this led to some twelve papers in *British Birds* covering such diverse subjects as the former abundance of the Kite, Buzzard and Raven in Kent, early records of the Crane and Great Bustard, 16th century bird drawings, and British birds in the 14th century. His historical researches also led to his co-authorship (with W. H. Mullens) of a book on 19th century Sussex ornithology (1925). He became an authority on the history of swan-keeping, with seven papers on this subject in *British Birds* during the 1920's: his studies culminated in the publication as recently as 1957 of his book *The Mute Swan in England*, which dealt particularly with the history and origins of the British population and the whole field of swan-marking.

Although for a good many years Ticehurst had seldom left his village of Smallhythe, near Tenterden, Kent, and few ornithologists alive today had ever met him, he was one of the great pioneers of the first 40 years of this century and his name will never be forgotten.

S.C., I.J.F.-L., P.A.D.H., E.M.N. and P.F.B.

## Reginald Ernest Moreau (1897 - 1970)

Reg Moreau died on 30th May 1970, the day after his 73rd birthday. It is sad indeed that no more will be seen of his squat, square figure, adorned frequently in the summer with a transparent green eyeshade, and more often than not, if the weather was warm, with huge knees and strong shoes protruding from a pair of shorts. He had a rugged face, a heavy square jaw, thick glasses, and just a fringe of curly hair which he brushed upwards (plate 66). This was a man whose impact on all shades of professional and amateur ornithology alike must be unexampled this century.

Reg's early life was humdrum and it was not until his teens that he took even a mild interest in birds. When he entered the Civil Service in September 1914, he was first posted to the War Office and a year later, being medically classified C3, he was transferred to the Army Audit Office. In 1920, because of incipient rheumatoid arthritis, it was recommended that he be given a complete change and he transferred to the Army Audit Department in Cairo. In his own words, this 'move to Egypt was the wildest revolution in my sheltered life'. He effected an introduction to M. J. Nicoll, who was an immediate influence in imbuing an intelligent interest in birds. Three months after his arrival, when convalescing from paratyphoid by the sea at the desert edge, the autumn migration so impressed itself on Reg that realisation came that the study of birds was something which brought him enjoyment and the mental satisfaction of intelligent enquiry.

At about this time, too, he met C. B. Williams, the entomologist, whose kindly, instructive influence and expertise shaped his whole scientific approach. It is clear that Reg was a late developer, but his modesty and diffidence must have hidden from many, and himself as well, the fact that his gifts were considerable. In June 1924 he married Winnie whom he had first met at Mariut; her great knowledge of botany and, later, a high skill at finding nests of tropical birds were to be great assets in their work together. Reg's first publications were two papers in *The Ibis* in 1927, both on migration in Egypt. The pattern for research which he had by then established proved sound enough to be followed for the rest of his life: the making of accurate and discriminating observations in the field and subsequent thorough analysis leading to the posing of fundamental questions about the deductions reached.

In 1927 the War Office was threatening to drag Reg home, but by the greatest fortune C. B. Williams was just then posted as deputy director to the revived old German biological institute at Amani, in



PLATE 59. Nuthatch *Nucifraga caryocatactes* at Doddington, Kent, 30th August to 11th September 1968, showing the chocolate crown and body with white speckling, the narrow white tip to the upper-side of the tail and the long bill. A total of 315 was recorded in Britain in autumn 1968 (pages 353-373) (photo: Brian Harker)







PICTURES 60 and 61. Two Nutcrackers in Norfolk, autumn 1968. Above and upper left, at Taverham, 14th September; lower left, at Dersingham, 6th to 27th September. Note the white under tail-coverts and the broad white end to the tail's underside. Norfolk had 95 records, more than any other county (photos: R. P. Bignall-Oakley)







PICTURES 62 and 63, Left, Suffolk Noddies in 1968, at Frostenden on 9th August (photo: R. P. Bagnall-Oakeley) and Covehithe from 22nd to 15th September (photo: R. Knight). Above, Cerne Abbas, Dorset, 20th September into November (photo: D. J. Godfrey). Below, Hailsham, Sussex, 25th to 31st August (photo: Pamela Harrison).







PLATE 64. Above, Nutcracker at Sewerby, Yorkshire, from 25th September to early November 1968 (*photo: H. O. Bunce*). Below, the northernmost representative of the 1968 invasion, at Lerwick, Shetland, from 21st to 23rd August; this bird took at least three House Sparrows and ate one entirely (page 365) (*photo: Dennis Coutts*)





PLATE 65. Presumed hybrid Mediterranean-Black-headed Gull *Larus melanocephalus* *ridibundus*, Hampshire, 1968 (below) and 1969 (above). It resembled a Mediterranean, even to bill shape and eye-patches, but the hood was not so extensive nor quite black, and black remained on the primaries (pages 387-382 - *Golden Gull*, Fisher).





PLATE 66. Reginald Ernest Morcan (1897–1970) (pages 376–380) (*photo: Eric Hosking*)



Tanganyika, and Reg was recommended for transfer there as secretary and librarian. Remembering that he had arrived in Egypt scientifically untrained, his knowledge of birds confined to irregular bird-spotting bicycle rides in Surrey, one is astonished to realise that in the next seven years he had advanced enough to have published six by no means negligible papers and written two chapters for Meinertzhagen's classic *Nicoll's Birds of Egypt* (1930), one on migration (about which he was still writing 40 years later) and the other on birds of Ancient Egypt.

The Agricultural Research Station at Amani provided the nurturing ground for Reg's intellect to mature and he seized his opportunity gratefully. Not only was he quick to emulate the training and skills of the scientists with whom he found himself, but he also pioneered new methods—with what success the next 20 years were to demonstrate. He was, of course, most favourably placed, in a montane rain forest area with unlimited opportunities for biological research and with a library which took in a broad spectrum of scientific journals. Yet ornithological literature was still extremely sparse in those days and there was little of importance published on matters even fringing on behaviour or ecology until J. P. Chapin published the first volume of *The Birds of the Belgian Congo* (1932). Reg was concerned most with ecological and breeding studies and nearly all his work posed basic questions in a new and brighter light than before. Some of the most important and far-reaching of his results were published in the *Journal of Ecology* and the *Journal of Animal Ecology*. In all, during his time at Amani, he produced no less than about 80 papers (many with Winnie) and established an international reputation in the field of ecology, at that time in its infancy as a scientific discipline.

Identification had often to be done by collecting. Seventeen birds named by Reg, including four new species—two warblers *Apalis argentea* and *Artisornis winifredae*, a robin *Cossypha kunguensis* and a weaver *Ploceus nicolli*—have so far successfully resisted synonymy, as have three birds named after him by other people, including another new species of warbler *Apalis moreaui*. Reg took some pride in discovering that semi-literate Africans, besides making reliable and pertinacious collectors, were able to work alone in isolated areas and were also readily trainable for amassing accurate data during lengthy routine observations at nests. Among the birds whose breeding he studied with this African help were three species of swifts and four of hirundines, also kingfishers, wagtails, flycatchers, hornbills and the Bateleur Eagle.

Those 20 years in Tanganyika were a time as productive and important as anyone's this century in its influence on African ornithology. During this period, too, Reg first showed his skill in another direction. From 1936 to 1946 he was working editor of the *East African*



*Agricultural Journal* and much profit may still be gained by would-be editors from reading his illuminating credo in that journal (1947: 171-175), which he wrote after he was forced in 1946 to return to England to save his eyesight.

Among the people Reg had first met as visitors to Amani were two whom he acknowledged as playing an important role later in shaping his life. These were W. H. Thorpe and David Lack, the latter having gone out to Africa to profit from Reg's newly developed concepts of ecology. Both provided him with significant ideas at different stages and both helped him when he came back to England with only an inadequate pension and two children whose education was as yet incomplete. He worked first at Madingley, Cambridge, and then at the Edward Grey Institute, Oxford, where he received a tiny honorarium for part-time work on African ecology. Shortly afterwards he was appointed to the editorship of *The Ibis*, which gave him a second tiny honorarium, and ends could just be made to meet: 'And so at the age of 50 began another stage of my education.'

During the next 20 years, while at the E.G.I., he was able to have a direct influence on a generation of young ornithologists, both professional and amateur. His room was a centre for general debate over sandwich lunches and for private discussion, and he provided much debunking, firm advice and wordly wisdom on matters both relevant and irrelevant to ornithology. He had a special gift of appearing no more than one's equal, an unconscious trait stemming from a genuine humility and an unusually shrewd assessment of character, which was unprejudiced by the person's mental stature. Occasionally, when annoyed, he would reach heights of splendid vituperation, but this was probably more an excuse for exercising his wealth of vocabulary than anything else; he had a great love of words.

It is now well recognised that, under Reg, *The Ibis* developed a rigorous standard of ornithological publication which none of its contemporaries has yet overtaken and which many have yet to attain. When he took over in 1947, it was considered of barely more importance than a respectable repository of African taxonomic and faunistic data. When he ceased to be editor after 13 years, it had succeeded in highlighting the importance of ornithological research as a branch of zoology; it was subscribed to by every significant natural sciences library and read by all serious students of zoology. This achievement was based on a skilled editing ability to reduce verbiage and yet clarify, aided by a profound grasp of the ornithological problems of the day in their widest context and, above all, by an uncompromising scientific integrity.

From 1960 to 1965 Reg served as President of the British Ornithologists' Union. He was a good chairman, benevolent and forward-looking, always ready to adopt an informal approach or attitude to

a problem if it would lower the heat of discussion or improve deliberations. He was especially sympathetic to the idea that encouragement of research was a valuable function of the B.O.U. in enhancing its importance as a scientific body in the international sphere. His contributions to ornithology had by now been recognised by the national ornithological societies of America, Australia, France, Germany, South Africa and Spain and of the Cooper Ornithological Club. The B.O.U. presented him with the Godman-Salvin medal and the Zoological Society of London awarded him the Stamford Raffles medal. But what perhaps gave him most pleasure was his M.A. *honoris causae* from Oxford University in 1955.

Of his work at Oxford he said that he was given 'least dissatisfaction' by his study of the western white-eyes (*Zosteropidae*); by his wide review and analyses of trans-Saharan migration, which have coloured so much thinking on the migration pattern in Britain and western Europe; and by several far-reaching papers on the biological consequences of changes in the comparatively recent geological past, the last subject making him aware of the great importance of the Pleistocene on evolutionary changes and determining the outlook of his stimulating book *The Bird Faunas of Africa and its Islands* (1966).

While at Oxford he produced some 70 further papers, apart from many short notes, pursuing his hosts of ideas in a worldwide correspondence. He also travelled a good deal, including to Zambia, Gambia, Senegal, Kenya, Cape Province, Morocco, Wisconsin, Arizona, Australia and many parts of western Europe, some publication resulting from almost every journey. Reg had a good working knowledge of Arabic (fluent at one time), Swahili, French, Spanish and German.

In 1966 'arthritis, which had first lent me life nearly 50 years before, rather abruptly foreclosed on me' and he and Winnie settled quietly into a small village north of Hereford. There he added another ten or more papers to his total, finished his small share of collaboration with Mrs B. P. Hall over the *Atlas of Speciation in African Passerine Birds* (recently published) and brought out a charming small book on his Oxfordshire village of Berrick Salome. He was widely read on country matters and would seldom miss an opportunity to inspect a church or old market place. He had a great enjoyment of biography, but, though he had a good eye for a photograph and a good ear for bird sounds, surprisingly painting did not enter much into his life and music not at all. Poor health in his youth had precluded an interest in sport, but he was a keen swimmer.

During his last twelve or more months he was working on a new book, to be entitled *The Palaearctic-African Bird Migration System*, and he barely completed the text before his death. This is likely to have as important an influence as anything he wrote, and it demonstrates again the gift he had for seeing and defining a problem where others

saw merely a set of accepted occurrences. In his candid, fearless way he was intrigued by the idea that two books with his name as author or co-author (this and the African atlas) would be published after his death. Mentally he was still as creative as ever—indeed, his intellectual alertness and vigour were, if anything, accentuated in the months of his last illness.

The bare outline of Reg's career is that of a man successful in his own field, but it is still astonishing that his reputation was achieved without any scientific training whatever, though he fully appreciated the debt he owed to his mentors and friends. To have assimilated so quickly and comprehensively in Egypt and during the first years at Amani, by reading and questioning, the whole basis of biological thinking related to ornithology, as well as the facts on which this thinking depended, and thereafter to have relied to such purpose on this self-taught groundwork for his own original ideas and his continuing process of learning, is an achievement one can but recognise with the greatest admiration.

Those who knew Reg outside his main interests will remember him as a delightful companion. His tastes were simple; he disliked pomp and dressing up, was always more at home at a picnic than dining out, and was never a collector of personal possessions. In spite of his agnosticism, his belief was firm in the fundamental rules of a humanitarian society. His wise advice, couched in compelling terms and with appropriate and unusual adjectives, as well as his understanding and humility, have influenced more than a generation of ornithologists of every stature; but it is as a friend of so many that Reg will be so greatly missed, for he was a great-hearted and good man.

J. F. MONK

## A presumed hybrid mediterranean X Black-headed Gull in Hampshire

J. H. Taverner

### Plate 65

In 1968, 1969 and 1970 several Mediterranean Gulls *Larus melanocephalus* summered in a colony of Black-headed Gulls *L. ridibundus* at Needs Oar Point, Hampshire; in 1968 one pair of Mediterranean Gulls and a mixed pair of the two species raised young; in 1969 and 1970 several male Mediterranean Gulls held territories (Taverner 1970). In all three years, too, what was considered to be a hybrid Mediterranean X Black-headed was present, paired with a Mediterranean Gull in 1968

and with a Black-headed in 1969 and 1970. This short paper describes the presumed hybrid; the accompanying photographs on plate 65 were taken by Dr G. H. Fisher.

The gull concerned was far closer in appearance to a Mediterranean Gull than a Black-headed, so much so that any good observer could have passed it as such from a brief or distant view either in flight or on the ground. I could not distinguish the flight silhouette from that of a normal Mediterranean Gull, nor could I see any difference in the size, build or shape of the bird from most angles on the ground. It had the bill of a Mediterranean Gull with a markedly decurved tip and a pronounced gonys (plate 65b), as well as the same distinctive white eye-patches. Its call was also usually that of a Mediterranean Gull, although on one occasion G.H.F. heard it utter rather different notes. On close or prolonged examination, however, this individual showed unmistakable signs of mixed blood:

(1) The hood, though extremely dark brown and far darker than that of any Black-headed Gull, was not quite black; in some lights it looked black, but the brown tint was usually noticeable. The hoods of the Mediterranean Gulls at Needs Oar Point invariably appeared jet black in all lights (and we had many opportunities of examining them in various conditions at ranges down to twelve feet). At the same time the hood, though extending much further than does that of a Black-headed Gull, did not come quite as far down the nape as in the Mediterranean Gulls. Consequently it never formed a straight line horizontally across the neck, but sloped up towards the rear. In some positions, especially when the neck was stretched, the lower line of the hood formed a step (plate 65b), but this feature could also be seen in Mediterranean Gulls in similar poses.

(2) In some stances the outline of the head was not unlike that of a Black-headed Gull. We never saw this in the Mediterranean Gulls, whose head shape was always characteristic.

(3) The colour of the bill was deeper than that of the Mediterranean Gulls with a touch of the same red as in a summer adult Black-headed; the tip of the bill was yellow, however, a feature shared by several of the Mediterranean Gulls. The legs were the same colour as the bill, darker and not quite so bright as those of a Mediterranean Gull.

(4) In flight there was a faint white leading edge to the wings, less evident than that on a Black-headed Gull but clearly visible.

(5) Most obvious of all, there was a considerable amount of black on the primaries (plate 65 and also plate 11b in Taverner 1970). In 1968 (plate 65b) we thought it possible that this bird could have been an aberrant second-summer Mediterranean Gull, but when it returned in 1969 (plate 65a) and again in 1970 with the primary pattern unchanged, it must have been fully adult and should have shown no black at all on the primaries. In flight, however, this black seemed



very much reduced and in most views the under-wing pattern (plate 65a) was much the same as that of a second-summer Mediterranean Gull.

In each of the three years this presumed hybrid paired with either a Mediterranean or a Black-headed Gull and, from its habit of regurgitating food to its mate, was clearly a male. Eggs laid by its Mediterranean mate in 1968 failed to hatch. Eggs were also laid by its Black-headed mates in the other two years; in 1969 it was not known whether the eggs hatched and, although they did so in 1970, the young were not seen after they were half grown.

#### SUMMARY

In 1968-70 a bird present with a group of Mediterranean Gulls *Larus melanocephalus* in a colony of Black-headed Gulls *L. ridibundus* at Needs Oar Point, Hampshire, was considered to be a hybrid between the two species, although it resembled a Mediterranean Gull much more closely. The points of difference were the colour and shape of the hood, the shape of the head, the colour of the bill and legs, the presence of a faint white leading edge to the wings and, above all, the continued retention of black on the primaries. In each of the three years the bird, which was evidently a male, was paired with a female Mediterranean or Black-headed Gull.

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## Notes

**Common Scoters inland** I was interested in the recent notes by Spencer (1969) and White (1970) on overland movements of Common Scoters *Melanitta nigra*, as not only *The Handbook*, but also Baxter and Rintoul (1953), Kennedy *et al.* (1955), Bannerman (1958), Atkinson-Willes (1963) and Ruttledge (1966) all stated—to varying degrees—that inland occurrences of this species are normally attributable to rough weather. Bannerman (1958) gave instances of summering and moulting of large numbers of Common Scoters, particularly on the east coast of Scotland and in the Solway Firth, but also in the Outer Hebrides. In March, and almost exclusively in August and September, males predominate in these flocks, whilst from late September onwards many females and immatures accompany the drakes. Bearing these facts in mind, the data presented by Spencer (for Lancashire, Cheshire and Yorkshire) would suggest a westward movement across England in July and August, and possibly in October and November, to moulting

areas perhaps in the Irish Sea, off south-west Scotland or off north-west Ireland. Such a moult migration would not account for records at other times of the year, however.

It may be worth placing on record the position for the West Midlands (Staffordshire, Warwickshire and Worcestershire). The records for 1934-60 were summarised by Lord (1962) and I have updated his summary to 1969. The following table shows the total number of Common Scoter records, and the number of individuals involved, in each month over the period 1934-69; note that Spencer's table gave the number of records, but not of individuals.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Records	9	6	8	27	12	12	21	23	17	23	32	15
Birds	16	8	8	58	49	22	76	40	43	95	99	17

The three peaks deduced by Spencer, in April, July-August and October-November, are also present here, but the spring peak is extended into May. There is the further complication that there is no evidence of the origin or destination of the birds involved, as the entire West Midlands area lies inland. Those reported in April and sexed included twelve birds stated to be in pairs, compared with one pair in each of the months May, July, August, September and December. The analysis by sex or age (where recorded) again agrees with Spencer's, but differs in that the yearly overall preponderance is of females and immatures:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Males	2	1	3	17	4	—	32	12	7	3	5	2
Others	7	1	2	10	6	5	8	9	5	48	57	7

That rough weather has a contributing part to play in this movement can be refuted by comparing the seasonal distribution of gales with these figures, and by the fact that fewer occur inland in the winter and early spring when numbers of Common Scoters around our coasts are at their peak.

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**Coot killing Carrion Crow** At 16.30 hours on 16th May 1970, at Gosforth Park Nature Reserve, Northumberland, I heard a Coot *Fulica atra* calling loudly from a large patch of flood-water in an adjoining field. I looked from the top of a hide and saw what appeared to be two Coots fighting. One was holding the other by the neck, immersing its head under the water for periods of up to two minutes, and pecking it viciously about the neck and back. When it finally released its grip, the victim's head appeared above the water, its bill open as if gasping for breath; I then realised that it was not a second Coot, but a Carrion Crow *Corvus corone*. The Coot immediately attacked it again and once more forced it under the water. Another three Coots joined in the fight and six more Carrion Crows were diving and mobbing the attacking Coots. After about 20 minutes the crow had become waterlogged and helpless; at times only its head was visible, and it was not long before it sank from view. I noticed a Coot's nest about six yards from this incident, and it seemed possible that the Carrion Crow had been in the act of robbing this when it was attacked and forced down on to the water by the Coot which subsequently caused its death.

A. BLACKETT

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**Aberrant Swifts** On 21st June 1970, at a clearing in the New Forest, near Fritham, Hampshire, I noticed a Swift *Apus apus* gliding overhead. Its belly was completely whitish, its throat pale and its upper breast brown forming a wide breast-band, but it lacked the large robust appearance of an Alpine Swift *A. melba*. It was in view for about ten seconds with no normal Swifts present. Swifts seen less than a minute later appeared similar in build and size. I relocated it about 30 minutes later by scanning over the forest from a near-by hill, and watched it for some 20 minutes with about 50 other Swifts present; the closest views were obtained at a range of about 200 yards. The bird resembled a Swift in size, shape, manner of flight and colour of upper-parts. The belly was clean off-white, however, marginally less white than that of an Alpine Swift but of similar extent. The throat was less pale than in the larger species, but paler than that of a normal Swift. The upper breast between the throat and belly was much browner than the throat, forming a clear breast-band very similar to that of an Alpine Swift. An observer unfamiliar with the latter species having the misfortune to be confronted by this bird on its own could well have been misled; I found it difficult to accept that it was merely an aberrant Swift.

Incidentally, another aberrant Swift, with a pure white rump, stayed for some time at Tring, Hertfordshire, in 1968 and this was identified as a Little Swift *A. affinis* by some experienced observers before it was eventually trapped. Apparently this record was never published.

DAVID BRITTON

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**Fight to the death and communal nesting by Carrion Crows** In most years a pair of Carrion Crows *Corvus corone* nests in the plane trees in Fitzroy Square, London. In 1970 they were late in settling down, since no real display was seen until 3rd March, though there had been occasional visits during the previous weeks. On the same day the female was watched 'trying out' several nest sites and finally appeared to choose one, a place among the branches where she sat for a long time shuffling round and round with the male in close attendance.

At 13.25 on that day another crow appeared in the square and was immediately challenged by the resident male, croaking at and threatening the intruder with head lowered, bill open and wings partly spread and sometimes fluttered. The intruder responded with the same threat-display, though less intense, from which I assumed it was another male, and this was followed by brief chases through the trees. During one such flight the two birds actually made contact and a moment later—at 13.31—fell flapping to the ground locked together. Then began a vicious, though very one-sided, fight during which one bird spent most of the time standing on the supine body of his rival pecking at the head. When not standing on him he gripped him by the throat and held him upside-down, with his tail in the air and his wings feebly flapping. Throughout this battle the female stood a few inches away croaking 'encouragement', though she did not actually join in the fight.

At 13.50—that is, after 19 minutes—the victor suddenly desisted and, after shaking himself, went into a frenzy of display to the female, croaking and bowing with wings half opened and flapped. She simply stood by, unresponsive, and soon both flew into a tree where the display continued. The defeated bird still showed faint signs of life, so I obtained a key to the square and, in front of a considerable gathering of onlookers, put it out of its misery. Both eyes had been blinded (one nearly gouged out), the whole head was denuded of feathers and bleeding from multiple wounds, the skin and superficial tissues of the crown had been virtually removed, and one leg was broken.

This incident seems particularly interesting since in 1964 three pairs of Carrion Crows built nests in this same small square (only 200 feet across) without any fighting observed at all, the only example,



to my knowledge, of communal nesting in this species. My office window was on one side of the square, directly overlooking the trees almost at nest-level and giving me a very good view of nest-building activities. As the leaves grew the view became progressively obscured and before young fledged I went abroad. My notes for 6th April read: 'Two adjacent nests in near tree definitely occupied, also nest in tree to right'. (I then labelled them A, B and C.) On 9th April I wrote: 'Quite definitely sitting on A and C and on guard at B'. After my return from abroad I noticed a number of young being fed in the trees, but it was impossible to tell from which nest(s) they came. Subsequently only one pair has nested in the square. M. D. ENGLAND

*Mashobra, Neatishead, Norwich* NOR 37Z

D. T. Holyoak, who has been studying the territorial behaviour and displays of the Carrion Crow, has commented: 'I have never known Carrion Crows to peck conspecifics around the eyes, but I have never watched an attack as violent as the one described . . . although from the battered state of some colour-marked birds I have recaptured it does not surprise me.' Derek Goodwin also drew attention to this point, as Dr Eberhard Gwinner, in one of his recent papers on the breeding biology of Ravens *C. corax* (*Z. Tierpsychol.*, 21: 657-754), said, on page 673, very definitely that Ravens never peck at each other's eyes even in fierce fights in which the loser is badly injured.

Mr Holyoak questioned the sexes of the birds involved in the fight observed by Mr England, as the intruder was not sexed by gonad inspection: 'I am puzzled by the mention of wing-fluttering movements in the "threat" displays that are described. So far as I have seen, crows have wing movement components only in the following displays: (1) Male's self-assertive *sexual* display: wings held low, sometimes slightly shaken. (2) Food-begging by paired females and juveniles: bill held open and wings flapped while half-opened. (3) Flight intention movements of birds of all ages and both sexes, given both by frightened birds and others that are merely uneasy when potential predators are present: see Dr C. J. F. Coombs's paper on the Rook *C. frugilegus* (*Ibis*, 102: 394-419). In this display the wings are lifted and the tail slightly spread in a quick flicking movement. So far as I have seen, this display is not given by territorial birds engaged in attacking conspecific intruders. The only threat displays I have seen Carrion Crows use are similar to the types described by Dr J. D. Lockie (*Bird Study*, 3: 180-190). These do not include wing fluttering components. From Mr England's descriptions of the displays he saw, it seems possible to me that it was in fact two females that fought, and both of them gave food-begging displays. Female Carrion Crows regularly defend the territory against female intruders

(but not males), whereas males defend it against other males and sometimes females as well.'

It is a pity that the account of communal nesting in 1964 is incomplete. In Mr Holyoak's experience, Carrion Crows are strongly territorial in the nesting season, their nest sites being within the feeding territory but located rather haphazardly relative to its limits; thus it is possible to have nests close together while large and exclusive feeding territories are being defended. In his opinion 'more detail is necessary to establish this as a record of communal nesting, which is hitherto unrecorded.' In reply, Mr England emphasised that two of the nests were in one tree and the third in the next; he added that most of the crows' food must have been obtained elsewhere, probably chiefly from Regent's Park, judging from the direction of their flight. EDS

**Magpies nesting on ledges and on a crane** Christopher Felton (*Brit. Birds*, 62: 445-446) found a nest of a pair of Magpies *Pica pica* in low poplar scrub on a sand-dune; the base was actually touching the sand. I know of a number of cases of ground-nesting by Magpies inland in south Lancashire, all on rock-faces in Parbold and Hunters Hill stone quarries. In the former quarry, for example, Magpies nested successfully in 1969 and 1970 on ledges about ten to 15 feet below the tops of faces whose total heights varied between 40 and 80 feet. The nests were of the usual size and design, built of sticks and lined with earth and fine roots, except that they all lacked the typical dome; five to seven eggs were laid, which are normal clutches for this species. Incidentally, in June 1966, at Wrightington, Lancashire, I found an empty Magpie's nest built in the new growth on the stump of a felled ash, only a couple of inches or so above the ground.

In 1967 and 1968 Magpies nested successfully some 40 feet up in the steel stanchion of a crane in Parbold quarry, rearing six young in 1968. The crane was in daily use throughout the nesting periods. A new nest was built each year, the second about a yard above the first. Only a shallow and somewhat sparse dome was added in each case, but in all other respects they were typical. A. R. FAIRHURST

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D. T. Holyoak has commented: 'There are references in the literature to Magpies nesting on a stone building (in a hole in a wall) and on a sea-cliff (on a narrow, vegetated ledge: nest rim and base of thin twigs, but dome absent), but not to nesting on rock faces in inland stone quarries nor in other sites on the ground. The nest on a crane has precedents in nests on high tension pylons: this kind of site seems to me likely to be more frequent than the literature suggests, though here the crane was "in daily use".' EDS

## Letters

**Melanistic White-fronted Geese** Further to my note on melanistic European White-fronted Geese *Anser albifrons albifrons* (*Brit. Birds*, 63: 131), Eckhart Kuyken has drawn my attention to his recent paper on melanism, albinism and other plumage variants in wild geese (1970, *Le Gerfaut*, 60: 3-25). This includes details of aberrant plumages in White-fronted Geese, Grey Lag Geese *A. anser* and Barnacle Geese *Branta leucopsis* in Belgium and the Netherlands. In view of the suggestion in my note that melanism might be a continuing trait among the population or populations of White-fronted Geese wintering in southern England, it seems relevant to summarise here the records of aberrant White-fronted Geese given by Mr Kuyken.

The numbers of melanistic White-fronted Geese recorded each winter, taken from table 1 of his paper, but excluding a record of one in Belgium in winter 1964/65 already incorporated in table 1 of my note, were as follows:

Winter	Belgium	Netherlands	Winter	Belgium	Netherlands
1957/58	—	1	1965/66	1	—
1963/64	1	—	1967/68	—	3
1964/65	—	3	1968/69	2	2

The Belgian and Dutch records for 1968/69 were thought to relate to the same two individuals, which in turn were thought to have been two of the three seen in 1967/68. (In addition, Mr Kuyken gave records of four 'isabelline' aberrants between 1958/59 and 1968/69). From the dates and descriptions it seems probable that the two in both Belgium and the Netherlands in winter 1968/69 were the same two individuals as were seen in Kent in that winter. If this was so, these geese evidently moved rapidly from one wintering area to another, as they were recorded at Oostburg, Netherlands, on 10th January 1969 (both), at Damme, Belgium, on 11th (one) and 12th (the other), in Kent on 18th (both) and at De Poel, Netherlands, on 2nd February (one).

The above records, probably relating to a further seven individuals, lend support to the suggestion that melanistic aberrants are occurring regularly in certain populations of White-fronted Geese. They also suggest that such individuals may be more frequent than in the past, especially as Bryan L. Sage, in his detailed review of albinism and melanism in birds (*Brit. Birds*, 55: 201-225), gave no British records of melanistic geese of any species.

P. J. OLIVER

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**Melanism in Rock Doves** While I would agree with the general conclusions of Murton and Clarke (1968) on what constitutes a 'wild' Rock Dove *Columba livia*, I feel that two errors in their paper should not go unmentioned.

Firstly, they stated that, in the Faeroe Islands, melanic morphs of this species are determined by a dominant gene, and they quoted Petersen and Williamson (1949) as their source. What Petersen and Williamson said, however, on page 19, was: 'From data obtained by N.F.P. at nests he has examined for several years in succession, it seems probable that the partial melanism . . . is due to a recessive factor or factors in the inheritance'. The data upon which they based this conclusion were quoted and there can be little doubt that Petersen and Williamson are correct.

Secondly, Murton and Clarke claimed (page 430) that the populations 'produce melanic morphs which, because they are determined by a dominant gene, would spread in the absence of strong selection against them'. Hardy (1908) showed that in a large, randomly-mating population with no selection there would be no changes in gene-frequency from one generation to the next. Thus it is immaterial whether a gene is dominant or recessive, as in the absence of selection it will not spread in the manner suggested by Murton and Clarke. In a small population (say, less than 100 breeding adults) with no selection, gene-frequencies may change, but this would be quite random in both degree and direction. A small amount of selection, or a larger population size, will counteract the effects of these random changes.

Murton and Clarke suggested that selection is relaxed in towns, allowing the frequency of the melanic gene to increase. In the countryside, however, they postulated that melanics are at a selective disadvantage compared with the wild type. More likely explanations of the former are that the melanics represent escaped dovescote birds or their descendants, which can survive better in association with man, or that predators remove the less cryptic forms, resulting in an increase of the melanics in grimy areas of towns where Feral Pigeons usually breed. The second explanation would also account for the low proportion of white pigeons in towns despite their popularity in captivity. The dovescote origin could similarly account for the disadvantage of melanics in rural areas. Here the wild type is better suited, by many generations of evolution in natural conditions, to survive.

An alternative hypothesis suggests itself from two recent studies abroad. Pielowski (1959) showed that Goshawks *Accipiter gentilis* took a higher proportion of white pigeons than would have been expected from the composition of the flocks on which they were feeding. Similarly, Mueller (1968) showed that a tame American Kestrel *Falco sparverius*, when presented with ten mice (one white and nine dyed



grey) on several occasions, took an excess of white mice. Both of these results suggest that predators select conspicuous prey. The melanics in a largely wild-type population of pigeons might also be subject to a higher degree of predation because they are different and consequently easier to follow in a flock of fast-flying birds.

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Dr D. T. Parkin rightly draws attention to the incorrect and misleading statements in the introduction to our paper on Rock Doves, and it is clearly not the case that these birds are exceptions to the principle that autosomal alleles in a diploid ratio of  $p:q$  and of equal survival value are stabilised in the population in the proportions  $p^2:2pq:q^2$ . Originally we had various qualifying statements in our manuscript which we edited out in subsequent drafts, because more information was being collected, and the final text became inaccurate; we should, nevertheless, be reprimanded for our slackness. In suggesting that melanic types would spread in the absence of some conflicting disadvantage, our thoughts had followed on from what had already been written elsewhere (Lofts, Murton and Westwood 1966); of course, there was no justification in tacitly assuming that readers of *British Birds* would be similarly directed in their thinking. In the above paper it was shown that town birds which remained in continuous physiological breeding condition were more likely to be melanic morphs; these forms are much more common in town populations where all-year-round breeding is the normal pattern. All things being equal, individuals with the highest reproductive rate should come to dominate a population, so one might assume that melanism, associated with a higher fecundity, would spread unless it was associated with other disadvantages.

We want to know why melanism can be maintained in towns while apparently 'selected against' in wild populations. In other words, the selective disadvantage of melanism seems not to exist in urban situations. If no selection exists in towns it is true that the ratio of melanic morphs will not change from the founder condition, allowing for chance genetic drift in small isolated populations. Because of the approach adopted in all our arguments, however, it is necessary to define why we suspect that selection is occurring in both of these situations.

Melanic morphs occurring in wild populations are at a selective disadvantage, judged by the evidence of Petersen and Williamson (pages 18 and 19): 'There is some variation in the amount and extent of the dark colouring, but the spotted wing-coverts and mantle appear to be characteristic of this form on Nólsoy. Finn Salomonsen (1935)

says the form sometimes constitutes half the population, but N.F.P. considers it is never so high as this, and it reaches its greatest when the population is at its peak. Normally the proportion of spotted to typical birds is about 1 in 15-20, but in 1936-37, when a sudden increase occurred in the population, N.F.P. assessed the abnormal birds at 1 in 7. (Unfortunately, data are not available for the preceding seasons.) . . . By the summer of 1937 the Rock Dove was so common on Nólsoy that N.F.P. counted 150 in a single flock in the fields at the height of the breeding-season. Numbers fell away during the winter, which was severe, and in the following March he found the skeletons of many birds which had apparently died at their roosting-places among the rock debris. In the spring the population, and the proportion of aberrant birds, was back to normal, a fact which seems to suggest that the melanic form (perhaps as a result of some physiological disadvantage) is less able to survive a rigorous winter.'

We can only speculate on the possible causes for the disadvantages of melanism. If melanic morphs tend to remain in continuous breeding condition, they are conceivably unable to acquire the post-nuptial lipid reserves necessary to tide them over poor feeding seasons; conversely, it may not be desirable to be in peak reproductive condition, with body metabolism geared to gamete production, when environmental conditions are severe. We have no evidence at this stage. But equally we have no real reason to think that melanic forms are more easily captured by predators because they are more conspicuous or because they are different. It would be valuable to know the ratio of different plumage types in the prey of Peregrines *Falco peregrinus* in relation to the colour of local populations. Nevertheless, evidence does exist to show that melanics in coastal wild Rock Dove populations are at a selective disadvantage.

We have been investigating town populations of *Columba livia* in a study area in the Salford Docks, Manchester. Here the proportion of plumage types changes between birds examined as nestlings (in many cases we know the plumage of the parents and their offspring) and those later trapped as juveniles or captured as adults. Very provisional results show that the proportion of blues (birds resembling the wild type, though not necessarily having a white rump) is relatively low at the nestling stage, but increases in the adult population. Dark blue chequers (much spotting and flecking with melanin deposits) are relatively common in the nestlings, but decrease in frequency in the adult population, while the proportion of intermediates (blue chequers) does not change. The situation is complex and much more analysis will be necessary before firm conclusions are drawn. Indeed, it was a realisation of this complexity that caused us to edit, disastrously, this part of our manuscript for *British Birds* in the first instance. We can also check the survival rate of different morphs:

about 3,000 birds of all types and ages have been ringed and given numbered wing-tags so that the number of recaptures in cage traps, or sightings, is sufficient for mortality estimates to be made. All we contend at this stage is that town populations are subject to selection and that predators are very unlikely to be the force operating, because in British cities appropriate avian predators are absent, except for very infrequent Peregrines, and predation by cats is unlikely to exert much selection pressure.

Finally, what we term 'melanism' is mostly in the form of dark feather markings, the chequer pattern, identical with that illustrated by Petersen and Williamson. This colour pattern is supposedly caused by one of a series of multiple alleles which are dominant to the bar pattern of the wild type, according to Hollander (1938). Levi (1963) also summarised other information showing that the chequer pattern is dominant over the wild-type allele so far as domesticated strains of *Columba livia* in the U.S.A. are concerned. Pure-bred chequer crossed with normal yielded 32 chequer and no normal progeny. These melanic progeny crossed with normal gave 152 chequer to 161 normal, so clearly the melanic gene is dominant. I have since discussed this anomaly with Dr Parkin and we agree that Petersen and Williamson's data are explicable only if 'melanism' were recessive. Thus a melanic male mated with a normal female gave only normal young; also, two normal individuals produced broods in which melanics were segregating. At the site occupied from 1924 to 1927, there was no statistical evidence that the parents were different ( $p > 0.1$ ), and the combined progeny comprised 11 normal to 4 melanics, almost the exact ratio to be expected if recessiveness were involved. Dr Parkin emphasises that, as H. N. Southern pointed out at the time, the broods are a little strange for there exists another 'normal  $\times$  normal' yielding equal numbers of normal and melanic progeny. This aberrant result could be due to chance, for the 'melanic male  $\times$  normal female' result would appear to be conclusive, assuming that the progeny were identified correctly and that fertilisation was not by some other normal male to which the female was more attracted than to her 'melanic' partner.

Dr Parkin suggests with me that, at face value, there has been a change of dominance of the character at one of the localities. Alternatively, a new mutation could have given rise to the Nólsoy melanism, either determined at the same locus as the chequer, or not. It would be interesting to have new details for Nólsoy, to cross a town melanic with a Nólsoy melanic, and to get the Salford results analysed. Dr Parkin has done a service in focusing attention on the need for more data to help resolve this interesting problem.

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**Breeding status of the Blackcap in Co. Wicklow** In part 6 of J. L. F. Parslow's paper 'Changes in status among breeding birds in Britain and Ireland' (*Brit. Birds*, 60: 493-508) there is a misleading statement long overdue for correction. In the section on the Blackcap *Sylvia atricapilla*, I am quoted as saying in *Ireland's Birds* (1966) and *in litt.* that in Co. Wicklow 'they appear to have decreased and may no longer nest regularly'. This is far from correct; no such statement appears in the book referred to, nor would I have made such a comment to the author of the paper. The fact is, as recorded clearly in *Ireland's Birds*, that Co. Wicklow is the chief stronghold of this species in Ireland.

R. F. RUTTLEDGE

*Doon, Newcastle, Greystones, Co. Wicklow*

**Wallcreepers in Cyprus** In his recent text on the Wallcreeper *Tichodroma muraria* (*Brit. Birds*, 63: 163-168), Dr H. Löhrl firmly stated that this species does not migrate. On the other hand, Dr W. R. P. Bourne, in his 'Check list of the birds of Cyprus' (1963, *Cyprus Orn. Soc. Bull.*, 15: 18-45), gave its status as 'scarce winter visitor; some fifteen records from lower cliffs and large buildings'. Subsequent records, taken from the annual reports of the Cyprus Ornithological Society, are as follows:

- 1962/63 One at Akrotiri, 15th and 16th February 1963
- 1963/64 One at Episkopi, 4th December 1963
- 1964/65 One at Bellapais Abbey, 23rd December 1964  
One at Episkopi, 27th February to 14th March 1965
- 1965/66 One in Kyrenia mountains, 6th November 1965  
One at Episkopi, 18th November 1965
- 1966/67 Two at Episkopi, 26th to 29th December 1966 and 'during January' 1967
- 1967/68 One at Kantara castle (northern mountain range), 10th February 1968
- 1968/69 One at Episkopi, 23rd to 25th February 1969
- 1969/70 One at Episkopi, 26th and 28th November 1969



The cliffs on the south coast at Akrotiri and Episkopi, which have provided most of the records, have been fairly well watched during these eight winters because of the presence there of the British forces' bases. But the Kyrenia mountains, which are very near the north coast and from which the Taurus Mountains of Turkey are visible on a clear day, are largely inaccessible and rarely visited by bird-watchers. Wallcreepers probably occur in the Kyrenia mountains more often than the records indicate; indeed, the possibility of a few pairs breeding there cannot be denied, but the absence of any spring or summer records from this area (or any other) makes this seem very unlikely.

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## Reviews

**Where to Watch Birds in Britain and Europe.** By John Gooders. Andre Deutsch, London, 1970. 299 pages; 25 black-and-white photographs; 27 sketch maps. 45s.

In this successor to *Where to Watch Birds* (1967), whose scope was confined to Britain and Ireland, John Gooders has extended his net to the rest of Europe outside Russia. For each country a selection of outstanding or typical localities is given, with brief notes on the terrain and the most characteristic birds followed by lists of the species of most interest according to season. Brief notes on access, sometimes accompanied by maps, conclude each account.

I must confess that I view with grave suspicion books of this kind, which tend to channel an ever-increasing number of bird-watchers into a decreasing number of good localities for birds. This is especially so when they provide additional incentives for conducted tours, the conduct and reputation of which are not always above criticism. The advent and behaviour of one such party has led to the appearance of notices on a number of local gates saying 'Private. No bird-watchers'. Obviously, if the land is private and no permit has been obtained, no landowner can be blamed for this, but it is a sad reflection on bird-watchers that the last words should be necessary. Increasing public interest is undoubtedly essential for wide-scale protective measures to be effective, but it has its dangers too and it is to be hoped that readers of Mr Gooders's book will have some care not only for the birds but also for those who will come after them and will also want to see something.

A biased interest having been declared, it is only fair to say that Mr Gooders has done a first-class job and, while few would claim a sufficiently detailed knowledge of the birds of Europe to be able to

check all the statements made, it is hard to find any obvious errors. Mention of two minor mis-statements only serves to emphasise this: Tree Sparrows are now far more widespread in the south of Ireland than is suggested, and Saltee had observatory facilities long after it was otherwise uninhabited.

Some feeling of regret at such widespread dissemination of information on the haunts of rare species will prevent few of us from making use of the book ourselves, even though we may cherish a feeling of satisfaction if some favourite, little-known haunt of our own has escaped the net. There is no question that this is an extremely useful book for anyone interested in European birds; and if it stimulates anyone to subscribe to bird protection as well, it will have been even more useful.

R. C. HOMES

**The Vanishing Jungle.** By Guy Mountfort. Collins, London, 1970. 286 pages; 26 colour and 88 black-and-white photographs. 63s.

I wonder how many naturalists travel in wild places as effectively as Guy Mountfort? He has written four books on his expeditions and the visits to no less than three of the countries have led to the establishment of substantial nature reserves by the governments concerned. Thirteen years after the last of his expeditions to Spain, the reserve at the mouth of the Guadalquivir continues to grow as more money from the World Wildlife Fund and the Spanish Government helps to buy and safeguard this precious area. Following the expedition to Jordan in 1963, King Hussein decided in favour of establishing a desert national park at Azraq though the Middle East situation has unfortunately prevented it from coming into operation yet).

*The Vanishing Jungle* tells of two expeditions: one to East and the other to West Pakistan where, as in the rest of the world, wild nature is disappearing as a result of industrial and agricultural expansion. In 1966 Mr Mountfort's party travelled through such deserts as Cholistan, 13,000 square miles of arid sand dunes interlaced with abandoned canals, on to the wetlands of the West Punjab and, finally, to the eastern Himalayas. In the following year the expedition started at the Indus, flew across India to the deltas of the Ganges and then finally moved to the tropical jungles of Sylhet.

The contents of the book are in the traditional Mountfort style of narrative. I always find the emphasis on leadership a trifle old-fashioned, if not pretentious, in view of the quality of the 'troops'. Nevertheless, it is a very readable book on explorations in a wide variety of country. Reports to President Ayub Khan resulted in the establishment of seven reserves and two national parks. The book is ably illustrated throughout by photographs, chiefly by Eric Hosking.

PETER CONDER

## News and comment *Robert Hudson*

**New Department of the Environment** The Prime Minister revealed in October the government's new administrative set-up for environmental matters. Under this reorganisation of government departments, the Right Honourable Peter Walker becomes Secretary of State for the Environment, the overlord of a new Department of the Environment. Subordinate to him are the three Ministers for Housing and Construction, for Transport Industries, and for Local Government and Development, thus bringing the functions of land-use planning, construction, transport, and prevention of pollution into a single department. Conservationists will now be anxious to see how effectively this new administrative machinery is used; but in any event there appear to be good prospects that the Cabinet Office pollution unit under Dr Martin Holdgate will retain the authoritative position visualised for it by the previous government.

**Countryside in 1970** The third and final Countryside in 1970 Conference held in London on 26th, 27th and 28th October, was attended by 850 delegates representing almost every British organisation concerned with environmental matters. The plethora of papers presented during the three days covered all four of the major themes (Agriculture and Forestry, Urbanisation, Industrialisation, Leisure) discussed at the ECY 1970 Conference at Strasbourg earlier in the year. To condense so much into 100 words is difficult, but a good try was made in the November issue of the Council for Nature's monthly bulletin, *Habitat*: 'What resulted from the Conference might be summarised in the words "compromise" and "commitment"'. Firstly this was a Conference about compromise . . . the need for an ecological approach to our institutions; it was a Conference in which naturalists showed that they were prepared to see the industrialists' point of view and in which the industrialists showed that they accepted the importance of our country's wildlife; the compromise between farming and wildlife exemplified previously in the Silsco conference. Above all those on the platform and in the body of the hall looked, throughout the three days, at the need for a realistic approach to a plan for the multi-purpose use of our country.' Inevitably, this was the last of the Countryside in 1970 conferences, but its work will be continued by CoEnCo and other bodies.

**A raptor bibliography** A good comprehensive bibliography is always a useful time-saver, so we welcome the appearance of *An Extensive Bibliography on Falconry, Eagles, Hawks, Falcons and other Diurnal Birds of Prey*, by Richard and Sharon Olendorff (1968-69). This bibliography, in which references are cited in the brief conventional form, has been issued in three parts, totalling 244 pages and covering 7,492 citations. Vultures, condors, caracaras, kites and owls are excluded. In their introduction, the authors admit frankly that the bibliography is not exhaustive, 'but this is the despair of the bibliographer, and he can only offer apologies to this point.' Only English-language references are given; the omission of German and Scandinavian literature is particularly regrettable. British publications appear to have been covered fairly well, but some omissions could have been avoided by consulting R. Irwin's *British Bird Books: An Index to British Ornithology* (1951). References are grouped under five main headings (Falconry, Eagles, Hawks etc, Falcons, Ospreys); presumably considerations of space precluded further groupings under species or subject headings, as in the annual *Zoological Record*. Nevertheless, this new raptor bibliography will prove a useful working tool, and criticisms are made only because a reviewer is expected to do so. Only 1,000 copies (cyclostyled) have been produced: they are available from the authors at Aggie Village 7-D, Fort Collins, Colorado 80521, U.S.A., price \$10 (to be paid in U.S. funds).

**Bird observatory news** There has been a bird observatory on Bardsey Island, Caernarvonshire, for the last 17 years, but it is not known whether there will be an 18th. The island's present owner has put it up for sale (serious offers in excess of £50,000 are invited by the agents); since it is offered with vacant possession, the future of the bird observatory will depend on the attitude of the new owner.

Roy Dennis has now left Fair Isle to take up duties on Speyside for the Royal Society for the Protection of Birds; the new warden of this bird observatory is Roger Broad, a zoological graduate of Aberystwyth University.

*Opinions expressed in this feature are not necessarily those of the editors of British Birds*

## Recent reports *P. F. Bonham*

**These are largely unchecked reports, not authenticated records**

The following analysis deals with August 1970, to which all dates refer unless otherwise stated. The weather was fairly settled until about 15th and again from 25th. During 16th-24th a series of depressions approaching from the west and an anticyclone over Scandinavia combined to give winds between east and south, and low cloud over the North Sea on 22nd-23rd brought a fall of typical Scandinavian migrants, including a few rarities, together with many waders.

### SHEARWATERS, HERONS AND WILDFOWL

This summary begins with several reports of enormous movements of **Manx Shearwaters** *Puffinus puffinus* and more particularly of **Sooty Shearwaters** *P. griseus*. After a severe cyclonic gale on 16th, more than 1,000 **Manx** were seen heading west off the Calf of Man during a few hours on 17th, and at about the same time thousands of **Sooty Shearwaters** occurred off Saltee (Co. Wexford) and off Mizen Head, Old Head of Kinsale, Ballycotton and Cape Clear Island (all Co. Cork); at the last locality 1,735 were counted on 20th and some 600 on 21st, the previous maximum in one day having been 350. A few **Sooty Shearwaters** were also noted on the south and east coasts of England and in Shetland, with the peak again from 16th to 21st. Six **Balearic Shearwaters** *P. p. mauretanicus* were seen off Bardsey (Caernarvonshire) and 28 off Portland (Dorset) on scattered dates, and 19 **Manx** passed Sand Point (Somerset) on 3rd. Other species were reported only from Cape Clear Island: single **Little Shearwaters** *P. assimilis* on 22nd and 31st, and 53 **Great or Cory's Shearwaters** *P. gravis*/*Calonectris diomedea* between 21st and 28th (of which six were identified as Great and eight as Cory's, the rest being indeterminate).

**Purple Herons** *Ardea purpurea* at Fingringhoe (Essex) from 2nd until about 15th and on Cape Clear Island on 26th, only the third Irish record, brought the year's total to 28. One of the **Little Egrets** *Egretta garzetta* at Arne (Dorset) in May (*Brit. Birds*, 63: 221) spent the summer in Poole Harbour; there was another Little Egret in Co. Cork late in the month, a **Night Heron** *Nycticorax nycticorax* at Slapton Ley (Devon) on 8th, and **Little Bitterns** *Ixobrychus minutus* at Bozenham Mill (Northamptonshire) on 2nd and in Cheshire towards the end of August. At least two other **Little Egrets** and a **Night Heron** also remained from July (*Brit. Birds*, 63: 351). **Spoonbills** *Platalea leucorodia* were few: two at Stoke lagoon (Kent) on 1st and singles later at Brancaster and Blakeney (both Norfolk) and Spurn (Yorkshire). Interesting reports of ducks included a peak of 250 **Gadwall** *Anas strepera* at Chew Valley Lake (Somerset) on 11th, gradually dwindling to less than 50 by 13th September, and a total of nine **Red-crested Pochard** *Netta rufina*: a



drake and two ducks at Holywell Ponds (Northumberland) on 9th, two females or immatures at Chew Valley Lake from 14th, one at Theale gravel pits (Berkshire) from 22nd and three drakes at Cheddar Reservoir (Somerset) on 31st. These records suggest a small influx from Dutch or Baltic breeding areas rather than captive origin (though it was unusually early in the autumn for such an influx). Three **Velvet Scoters** *Melanitta fusca* at Harty, Isle of Sheppey (Kent) on 23rd and an early record of eight **Pale-bellied Brent Geese** *Branta bernicla brota* at Minsmere (Suffolk) on 28th and 29th were also surprising, and lastly the sick **Bewick's Swan** *Cygnus bewickii* that had stayed at Swarkestone (Derbyshire) since the 1969/70 winter (*Brit. Birds*, 63: 223) remained throughout June and July and was last seen on 8th August, and another injured bird summered on the Ouse Washes.

#### RAPTORS TO CRAKES

A pair of **Golden Eagles** *Aquila chrysaetos* bred successfully in the English Lake District, rearing one young, the first recorded nesting in England at least since the 17th century. In central Wales 24 pairs of **Red Kites** *Milvus milvus* raised a total of 17 young (16 in 1969); and in Speyside in the Scottish highlands three pairs of **Ospreys** *Pandion haliaetus* reared eight young in all, at least one other eyrie was unsuccessful and several unpaired adults summered. Unusual raptor records included a **Red Kite** on the north Norfolk coast about mid-August and at least eight **Ospreys**, one at Loch Leven (Kinross) and the rest in England. More than 25 **Quail** *Coturnix coturnix* and several migrant **Corncrakes** *Crex crex* and **Spotted Crakes** *Porzana porzana* were reported.

#### WADERS

A few American waders arrived in August (though these were to be completely overshadowed by the exceptional numbers in September and October). The first reports were of single **Lesser Yellowlegs** *Tringa flavipes* at Stoke lagoon on 1st and in Cuckmere Haven (Sussex) on 2nd and 3rd, followed by a **White-rumped Sandpiper** *Calidris fuscicollis* at Wisbech sewage-farm (Lincolnshire/Norfolk) from 10th to 13th, and a **Wilson's Phalarope** *Phalaropus tricolor* there on 11th. During the second half of August, seven single individuals of six more species were reported: a **Lesser Golden Plover** *Pluvialis dominica* at Barley Cove (Co. Cork), a **Solitary Sandpiper** *Tringa solitaria* at Radipole Lake, Weymouth (Dorset), a **Spotted Sandpiper** *T. macularia* at Bussow Reservoir, St Ives (Cornwall), a **Baird's Sandpiper** *Calidris bairdii* at Lemsford (Hertfordshire), a **Semipalmated Sandpiper** *C. pusillus* at East Aberthaw, Barry (Glamorgan) and **Pectoral Sandpipers** *C. melanotos* at Wisbech sewage-farm and on Skokholm (Pembrokeshire).

Reports of vagrants from the east and north-east involved a **Marsh Sandpiper** *Tringa stagnatilis* at Hartlepool (Co. Durham) during the latter part of the month, a **Sharp-tailed Sandpiper** *Calidris acuminata* at Sutton (Herefordshire) on 24th and a **Broad-billed Sandpiper** *Limicola falcinellus* at Harty on 31st. Southern rarities were also very scarce: **Kentish Plovers** *Charadrius alexandrinus* at Walland Marsh (Kent) on 7th and at Sandwich Bay (also Kent) on 30th and 31st, a **Black-winged Stilt** *Himantopus himantopus* in the Fingringhoe area from 3rd to 7th, and a **pratincole** *Glareola sp* on Cape Clear Island on 24th.

After the extraordinary influx of **Curlew Sandpipers** *Calidris ferruginea* in autumn 1969 (*Brit. Birds*, 62: 503-504), the passage in 1970 was considered to be slightly higher than normal, with only a few records before 22nd when there was a dramatic increase coincident with widespread falls of **Wrynecks** *Jynx torquilla* and passerines on the east coast (see below). Well over 300 **Curlew Sandpipers** were reported altogether; the only exceptional flock was of 59 at Perry Oaks sewage-farm (Middlesex) for a short period during the evening of 26th (the maximum there in 1969 having been only 39). The 160 to 200 **Little Stints** *C. minuta* and about 15 **Temminck's Stints** *C. temminckii* conformed to the same pattern. Other notable wader

reports included five early **Jack Snipe** *Lymnocyptes minimus* from 26th, a **Whimbrel** *Numenius phaeopus* over Kensington Gardens (London) on 5th and a few migrant **Dotterel** *Eudromias morinellus*, **Avocets** *Recurvirostra avosetta*, **Grey Phalaropes** *Phalaropus fulicarius* and **Stone Curlews** *Burbinus oedicnemus*.

#### SKUAS, GULLS AND TERNS

About 15 scattered reports of one or two **Pomarine Skuas** *Stercorarius pomarinus* came from the English east and south coasts and from south-west Ireland, and a **Long-tailed Skua** *S. longicaudus* was seen at Gibraltar Point (Lincolnshire) on 16th. An **Iceland Gull** *Larus glaucoideus* remained at Ballycotton from July, at least four **Glaucous Gulls** *L. hyperboreus* and six **Mediterranean Gulls** *L. melanocephalus* were distributed along the east coast, and single **Mediterranean Gulls** also appeared on Skomer (Pembrokeshire) and at Clonakilty (Co. Cork). The increase in the last species during July and August, compared with the few in the spring, probably reflects the post-breeding dispersal inferred by Dr W. R. P. Bourne from the 1958-62 records (see *Brit. Birds*, 63: 92). **Little Gulls** *L. minutus* were, as usual, much more numerous than in July; reports of nearly 200 in some 40 localities included a flock of about 40 at Abberton Reservoir (Essex). As with American waders, **Sabine's Gulls** *L. sabini* were scarce in August but vastly increased in September: singles occurred at Spurn, Bardsey, Brandon Point (Co. Kerry) and Ballycotton.

Passage of **Black Terns** *Cblidonias niger* was fairly constant, though heaviest early in the month and again from 16th onwards. Ninety at Chew Valley Lake on 2nd was a notable early concentration, while the largest number reported was 120 at Dungeness (Kent) on 23rd, exactly a year after the much greater peak there of 700 in 1969 (*Brit. Birds*, 62: 502). It was an exceptional year for **White-winged Black Terns** *C. leucopterus*: eleven more between 6th and 31st August brought the total so far to over 30. These were at Draycote (Warwickshire), Bardney (Lincolnshire), Wisbech sewage-farm (two), Ely (Cambridgeshire), Abberton Reservoir and Dungeness (two each), Chew Valley Lake and Eglwys Nunydd Reservoir (Glamorgan). **Whiskered Terns** *C. hybrida* were reported from Fingringhoe on 3rd (two), from Blithfield Reservoir (Staffordshire) on 9th and Durleigh Reservoir (Somerset) on 22nd. A **Gull-billed Tern** *Gelochelidon nilotica* was identified at Reculver (Kent) on 18th and two **Caspian Terns** *Hydroprogne tschegrava* at Roches Point (Co. Cork) on 8th. A **Roseate Tern** *Sterna dougallii* inland at Netherfield (Nottinghamshire) on 13th was rather unusual.

#### EASTERN MIGRANTS AND VAGRANTS

A few scattered **Wrynecks**, **Icterine Warblers** *Hippolais icterina* and **Barred Warblers** *Sylvia nisoria*, as well as a **Scarlet Rosefinch** *Carpodacus erythrinus* on Whalsay (Shetland) on 12th, preceded the first small arrival on 20th and the much larger falls of 22nd and 23rd. Many of these were on Fair Isle (Shetland): one or two **Wrynecks** on 18th and 19th, an **Icterine Warbler** on 4th, and **Barred Warblers** on 4th and 7th with small numbers from 14th (maximum seven on 17th). There were also single **Icterine Warblers** at Hartlepool on 8th and at Minsmere on 10th and 11th, and **Barred Warblers** on Whalsay on 13th and at Hauxley (Northumberland) on 16th. An **Arctic Warbler** *Phylloscopus borealis* was trapped on Fair Isle on 7th, an early **Fieldfare** *Turdus pilaris* seen on Unst (Shetland) on 16th and an **Aquatic Warbler** *Acrocephalus paludicola* trapped on Guernsey on 18th. On 20th a few more **Wrynecks** appeared on the east coast, another **Icterine Warbler** and a **Barred Warbler** were found at Hartlepool and single **Barred Warblers** also appeared on Fetlar (Shetland) and at Spurn. Two more **Fieldfares** were reported, from the Isle of May (Fife) and from Hartlepool. On 21st a **Bluethroat** *Luscinia svecica* was found at Dungeness and a *Hippolais* warbler (almost certainly **Icterine**) seen at St Mary's (Northumberland); Fair Isle recorded a **Greenish Warbler** *Phylloscopus trochiloides* and two **Scarlet Rosefinches**.

On the following day at least 20 **Wrynecks** were reported, including the first-ever at Leighton Moss (Lancashire), three on Fair Isle, six on the Isle of May, two at Hauxley and two at Spurn. At least 15 were present at each of the last three places on 23rd, and in addition some 50 Wrynecks were seen at more than 20 other localities that day, numbers gradually decreasing on subsequent dates. Altogether more than 150 were reported from 45 localities, all on the east and south coasts except for at least seven in inland counties and singles at Leighton Moss, Bardsey, Skokholm and Skomer. With the Wrynecks came **Whinchats** *Saxicola rubetra*, **Pied Flycatchers** *Ficedula hypoleuca* and other typical Scandinavian migrants. More exciting were the 20 **Icterine Warblers** and 35-40 **Barred Warblers** during 22nd-31st; the main influx of the former was again on 23rd, but most of the latter apparently did not arrive until 24th or 25th. Records from western Britain included an Icterine on Hilbre on 29th (the first Cheshire record), and a Barred Warbler at Leighton Moss on 24th and two on the Isle of Man on 25th and 29th respectively (both trapped). An Icterine also occurred on Cape Clear Island on 27th and 28th.

Small arrivals of **Red-backed Shrikes** *Lanius collurio* and **Ortolan Buntings** *Emberiza hortulana* were also apparent during 22nd-31st; the 15 or so Red-backed Shrikes were distributed from south-east England north to Fife, but two of the six Ortolans were found on Bardsey and Skokholm and one at Portland. **Scarlet Rosefinches** were reported only from the far north—singles on Fair Isle on 22nd, 25th and 31st, on Fetlar on 24th and on North Ronaldsay (Orkney) on 26th—while, at the other extreme, the **Bluethroats**, **Aquatic Warblers** and **Tawny Pipits** *Anthus campestris* during 22nd-31st were concentrated in the south, indicating a south-eastern rather than Scandinavian origin. All seven Bluethroats were between Kent and Dorset, except for a **White-spotted Bluethroat** *L. s. cyaneula* at Rainham (Essex) on 30th which was certainly not from Scandinavia; nine or ten **Aquatic Warblers** were similarly scattered along the south coast apart from one on Skokholm; and **Tawny Pipits** were seen at Clevedon (Somerset) on 25th, at Worthing (Sussex) on 27th (two) and at Portland on 29th.

Other eastern species were a **Nutcracker** *Nucifraga caryocatactes* flying west at Beachy Head (Sussex) on 22nd, single **Greenish Warblers** at Bamburgh (Northumberland) on 22nd and on Cape Clear Island from 24th to 26th (in addition to the one on Fair Isle which stayed until 24th), a **Yellow-browed Warbler** *Phylloscopus inornatus* at Slapton on 30th and a **Red-breasted Flycatcher** *Ficedula parva* on Cape Clear Island on 25th and 29th. A male **Brambling** *Tringilla montifringilla* was apparently seen among a flock of **Linnetts** *Acanthis cannabina* at Colwick (Nottinghamshire) on 29th, and, by way of a complete contrast, the date of a **Snowy Owl** *Nyctea scandiaca* at Glenisla (Angus) on 22nd leads one to suspect that it might have originated from Scandinavia rather than Shetland.

#### OTHER NEAR-PASSERINES AND PASSERINES

There were very few southern vagrants during August. Among the more exotic were a **Great Spotted Cuckoo** *Clamator glandarius* at the gravel pits between Lydd and Dungeness on 22nd, a **Hoopoe** *Upupa epops* at Portland on 27th, and single **Bee-eaters** *Merops apiaster* at Millwood, Barrow-in-Furness (Lancashire) on 2nd, on Fair Isle from 6th to 17th (possibly one of the two that remained on Unst from July until 5th), in Syon Park, Brentford (Middlesex) on 14th and at Huthwaite (Nottinghamshire) on 27th and 28th. A **Nightingale** *Luscinia megarhynchos* on Cape Clear Island from 20th to 24th and a **Lesser Whitethroat** *Sylvia curruca* there on 29th were noteworthy (both are very rare in Ireland), and a **Reed Warbler** *Acrocephalus scirpaceus* trapped on the Calf on 25th was the first Manx record. Finally, **Melodious Warblers** *Hippolais polyglotta* occurred at both Minsmere and Portland on 14th and 15th, on Walney (Lancashire) on 18th, and on both Bardsey and Cape Clear Island on 28th, and **Bonelli's Warblers** *Phylloscopus bonelli* were present at Holme (Norfolk) on 8th and 9th, on Cape Clear Island on 19th and at Beachy Head.



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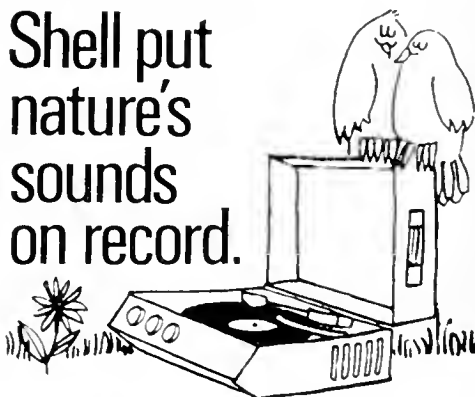
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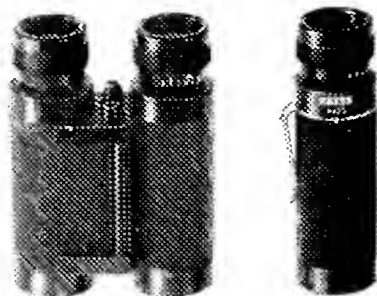
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# *British Birds*

## Direct effects of rain on birds: a review

*R. J. Kennedy*

The direct effects of rain on birds is a subject to which no more than passing attention has yet been given. This review is an attempt to summarise the scattered information in the literature and to draw some general conclusions. It is concerned particularly with wetting and its consequences, and with the behavioural responses of the birds.

### WETTING BY RAIN

Nye (1964) showed that, if the insulating layer of air trapped under and between the feathers is replaced by water, which is a greater conductor of heat, the wet bird will suffer much larger heat loss, for which it has to compensate physiologically if its body temperature is to remain constant. Heat will also be lost through evaporation of water from the wet plumage. This extra heat loss must be made good by the production of heat from internal reserves. If these are depleted, or if cooling is rapid, death from hypothermia (lowered body temperature) may result. It must therefore be of considerable survival value for plumage to withstand rain, especially when the weather is cold and food is scarce. The questions which need to be answered are:

- (1) Are some species more prone than others to wetting?
- (2) To what plumage characters is variability in rain resistance due?
- (3) What are the consequences of wetting?
- (4) Are some species more resistant than others to loss of heat after wetting and, if so, how?

This review is not, however, concerned with (2), a neglected and complex subject which needs a review to itself, other than to point out that structural characters of the coherent vanes of body feathers are implicated (Baxter and Cassie 1945).



## RECORDS OF WETTING BY RAIN

It is probable that the plumages of most birds are at least temporarily rainproof, and that the ability to shed water declines with the time of exposure and the intensity of the rain. Madsen (1941) believed that most land-birds were capable of withstanding prolonged rain without their plumages becoming soaked. Although this may be true, the value of such a vague general statement without factual evidence is slight, and there seem to be few records in the literature of the comparative abilities of birds of different species to withstand rain.

Rowan (1967) found that mousebirds *Colius spp* became wet in heavy rain and then relapsed into torpor which might be followed by death; she considered that their soft, hairlike plumage was easily wetted. McKinney (1952) noted that even incubating Mallard *Anas platyrhynchos* might become wet in prolonged heavy rain. Warner (1963) found that Laysan Teal *A. laysanensis* in the wild state were very easily wetted in rain, but he could give no explanation for this. Yealland (1941) stated that waders of various species which had been sent to him at London Zoo in boxes became drenched by heavy rain on arrival, but the water repellency of the plumage was restored after a few weeks in captivity and from then on the birds could be exposed to rain without chilling.

Some descriptions have been published of the effects of severe rainstorms on roosting passerines, many of which were found dead with soaked plumage. Odum and Pitelka (1939) recorded a differential mortality, the proportions of Bronzed Grackles *Quiscalus versicolor* and Cowbirds *Molothrus ater* to Starlings *Sturnus vulgaris* among the corpses being much higher than in the roosting flocks. Similarly, Childs (1913) noted that American Robins *Turdus migratorius* were killed, but very few House Sparrows *Passer domesticus* despite their abundance; the birds were blown by strong winds out of the trees in which they were roosting and died from wetting on the ground. In another instance involving House Sparrows alone, Dawson (1967) found that there was apparent agreement in the proportions of males, females and juveniles killed and those in the population. In all three cases, however, a complex of factors could be involved and there is little on which to base assertions on the comparative abilities of different species to withstand wetting.

In north Queensland, Australia, heavy falls of as much as 12 inches of rain in 24 hours occur, with high winds, and White (1946) stated, 'it was not an uncommon sight to see birds with sodden plumage', though unfortunately he did not name the species concerned. Cottam and Trefethen (1968) recorded that unbrooded nestling White-winged Doves *Zenaida asiatica* and recently fledged juveniles became drenched by rain and were weakened, dying of exposure and predation. In heavy

rain, the plumages of both adult and nestling Spoonbills *Platalea leucorodia* become wet and matted (Beetham 1896). Frigate-birds *Fregata spp* (Murphy 1936), Greenshanks *Tringa nebularia* (Nethersole-Thompson 1951), a Griffon Vulture *Gyps fulvus* (Bannerman 1956), a nestling Cuckoo *Cuculus canorus* (L. S. V. Venables *in litt.*) and nestling Buzzards *Buteo buteo* (Hosking and Newberry 1940) have all been recorded as getting wet in heavy rain. Bump *et al.* (1947) found that the chicks of Ruffed Grouse *Bonasa umbellus* were wetted in rain only if the birds were flushed from cover, presumably the result of brushing the plumage against wet vegetation. Lack and Lack (1952) noted Swifts *Apus apus* 'flying through heavy rain, and arriving in their [nest] boxes very wet'. Other records of wetting of birds by rain were given by Kendeigh (1934) and Nye (1964). In heavy rain I have observed the wetting of heads and mantles of Herring Gulls *Larus argentatus*, Black-headed Gulls *L. ridibundus*, a Willow Warbler *Phylloscopus trochilus*, Jackdaws *Corvus monedula* and Woodpigeons *Columba palumbus*, but have seen no sign of wetting of the plumage of Pied Wagtails *Motacilla alba* observed at short range. J. V. Beer (*in litt.*) has also noted the mantles of Herring Gulls becoming wet in heavy rain, as well as young being drenched.

The wetting of the plumage of Peregrines *Falco peregrinus* by rain was recorded by Baker (1967), and as early as about 1250 by Frederick II of Hohenstaufen in *De Arte Venandi cum Avibus* (Wood and Fyfe 1943). In this connection Beebe (1960) made the interesting observation that the race *pealei* of the Peregrine, which inhabits the north-west Pacific coast of North America, a region of heavy rainfall, and which is characterised by a very abundant production of powder down, is unusually resistant to wetting by rain. Other raptors, including other races of the Peregrine, which were exposed to rain at the same time were soaked. Beebe considered that the powder on the plumage somehow confers resistance to wetting. This seems likely, but no experimental studies have been made to elucidate the precise role of powder down.

It is only too evident that the records of wetting of birds by rain are extremely fragmentary. At this stage, however, it seems clear that a wide variety of species become wet in rain and that there is probably no such thing as a completely rainproof plumage; nevertheless, most of the records of wetting refer to land-birds, as would be expected, since the plumage of water-birds is generally capable of prolonged exposure to water without becoming wet. No clear-cut differences emerge between the abilities of the plumages of different land-birds to withstand rain, a result no doubt of the casual nature of the observations and the difficulty of describing the rainfall involved, most authors relying on such vague terms as 'light', 'heavy', 'thunderstorm' and 'prolonged rain'.

## THE CONSEQUENCES OF PLUMAGE WETTING

Experimental wetting of a variety of species results in a sharp drop in body temperature, especially if the birds are young (Bump *et al.* 1947, Long 1948, Nye 1964). Long showed that unfed young of several gallinaceous species were less resistant to the wetting effects of rain than were individuals which had been fed; in addition, wetting at low air temperatures produced a faster and greater fall in body temperature, with a slower recovery than at higher air temperatures. It is clear from this that it is advantageous for the bird to shelter from rain or to have a rain-resistant plumage. Long also showed that 'cold adaptation' occurred in Pheasants *Phasianus colchicus*: in other words, individuals repeatedly exposed to cold and wet were capable of maintaining their body temperatures better than were others which had not been exposed before. It is probable that this ability is a result of increased production of thyroxin from the thyroid gland. Here is clear experimental evidence for the chilling effects of wet plumage, but how important is this in natural mortality? As Nye (1964) noted, there are few reports in the literature of hypothermia in wild birds from natural wetting under field conditions, but this is probably due more to lack of observation than to rarity of occurrence.

As well as differences between species in resistance to rain, there are probably physiological differences in their ability to withstand the cooling effects of wet plumage. Cormorants *Phalacrocorax spp.*, for example, which apparently get wet on immersion in water as a daily event, must have some physiological resistance to hypothermia, as well as a thick insulating layer of subcutaneous fat, to compensate for the replacement of trapped air in the plumage with water. Other things being equal, it must be more serious for a small bird than for a large one to get wet, since heat loss is related to surface area, which is greater in relation to volume in small than in large species. On these grounds one would expect greater mortality from wetting in small birds. To sum up, the effects of wetting are exacerbated if the bird is small, if the weather is cold, if food is scarce, if other stresses are applied, or if the bird is young and its system of temperature regulation not yet developed.

Instances of heavy mortality from severe storms were given by Kendeigh (1934): the birds were usually killed by soaking of the plumage and being forced to the ground, where they were in effect drowned. These mortalities were often associated with cold weather and scarcity of food, conditions which exacerbate the effects of wet plumage. Kendeigh was probably correct in his belief that ordinary rains do not wet or affect birds to any harmful degree, although he considered birds to be particularly susceptible to mortality from rain in the breeding season: 'Juvenile birds, even several days out of the nest, are less able to avoid becoming soaked by rains than are

adults.' This is presumably a reflection of both a relatively imperfect plumage and more naive behaviour.

Downy young also appear susceptible to wetting by rain, and hypothermia followed by death is frequent (Long 1948, Nye 1964). The brooding of such young by the adults in rain undoubtedly reduces mortality, which is probably the result of a combination of plumage less resistant to water, much poorer resistance to hypothermia, and small size. Bump *et al.* (1947) found that chicks of the Ruffed Grouse, if not brooded during heavy rain, may die. Those less than six weeks old are more susceptible to the effects of severe rain than older ones. They found that losses of young were related to the number of days on which rain fell rather than the total amount falling. They interpreted this mortality to be the result of soaking of the plumage of the young by contact with wet vegetation, since light rains probably soak vegetation as much as do heavy rains. The influence of rain, even if heavy, on the survival of the adult grouse was minor. Dale (1942) noted that young Partridges *Perdix perdix* being reared 'must be carefully protected against weather changes, as a small amount of rain is likely to be fatal to them. Young Pheasants, however, can often survive serious wetting without high mortality if accompanying temperatures are not too low.'

Gerstell (1936) found that high rainfall in the breeding season in Pennsylvania resulted in higher breeding success of Bobwhite Quail *Colinus virginianus* than in seasons when rainfall was below the mean. As he pointed out, this is the converse of what might be expected. He considered that mortality of chicks in the wild by drowning and wetting was probably insignificant, being reduced by the parent's brooding and by the young taking shelter. He concluded that the connection found between rainfall and breeding success was the result of food production being related to rainfall. Although the effects of high rainfall on food supply may increase breeding success, it is nevertheless likely that a greater mortality of young results from wetting than in drier years: as he noted, young game birds reared artificially require shelter from rain for high survival. The most probable explanation of Gerstell's results is that any increased mortality of young from wetting in rainy seasons was more than offset by the greater availability of food.

Swifts are particularly prone to heavy mortality in rainy weather, because they suffer a shortage of aerial insect food, are susceptible to cold, and get wet (Koskimies 1950). L. S. V. Venables (*in litt.*) reported that a young Cuckoo died on the nest after two nights of heavy rain, its plumage drenched: its foster parent, a Dunnock *Prunella modularis*, was too small to brood it effectively.

Campbell (1968) gave some evidence suggesting that heavy rainfall in winter affects numbers of tits *Parus spp* in a wood, although he



admitted that other associated weather factors made it difficult to draw a definite conclusion. He suggested that the effects of rain might be the wetting and chilling of the birds and also the washing of insects from the vegetation. Rain may also wash away nests, as recorded for the House Martin *Delichon urbica* by Howard (1948), or drown birds in nest burrows, as recorded for the Sand Martin *Riparia riparia* and the Little Green Bee-eater *Merops orientalis* by Goodwin (1947). It seems likely that rain is important in mortality only when particularly heavy and especially when coupled with other factors, and that it is young birds which are most affected.

The hunting efficiency of Peregrines is reduced in rain because their plumage gets wet, as noted by Frederick II of Hohenstaufen (Wood and Fyfe 1943): 'In misty weather, the falcon may easily be lost and her feathers may become wet. Rain . . . is undesirable, as it hinders her flight. To the heron [*Ardea cinerea*] such weather is less of an impediment, for its feathers, even when sprayed with water, do not absorb the water. The heron's defence is in lofty flight; and a falcon weighed down with rain-soaked plumage cannot mount above the hunted bird.'

#### BEHAVIOUR OF BIRDS IN RAIN

##### (1) *Postures adopted*

Simmons (1965) noted that birds exposed to rain normally sleek their feathers and stand in a semi-vertical position with neck retracted so that the rain easily drains off the plumage. Sleeking of the plumage presses the feathers closely together and probably reduces the numbers of gaps through which water could penetrate. I have repeatedly ob-

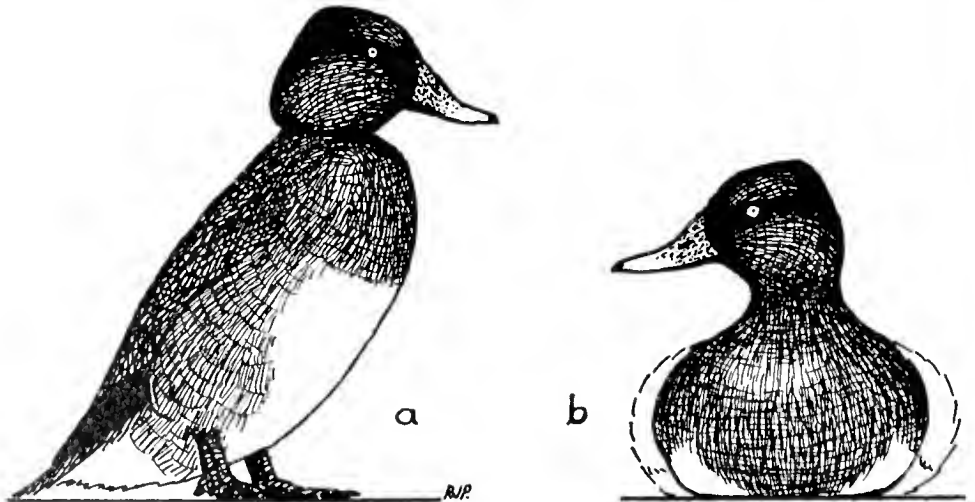


Fig. 1. Postures of captive Australian White-eyed Ducks *Aythya australis* when sprayed with a hose: (a) semi-vertical stance with neck retracted and plumage sleeked so that water runs off; (b) squatting with plumage again sleeked, but expanded to broken outline as soon as spraying ceases (drawn by R. J. Prytherch)

served this semi-vertical stance in captive Australian White-eyed Ducks *Aythya australis* when exposed to spray from a hosepipe (fig. 1a). Alternatively, this species squats on the ground and sleeks its feathers against its body, the change in thickness of the plumage being most pronounced (fig. 1b). Immediately the spraying ceases, the bird appears to expand again. Alternation between the two postures takes a matter of a few seconds: the ease and smoothness with which the 'contracted' position is taken up makes it likely that expulsion of air from air sacs is also involved, since it seems improbable that such a marked contraction could result from the action of the feather musculature alone. If showering is heavy, the nictitating membranes are closed, protecting the eyes. I have observed gulls and terns (*Laridae*) on the ground stop feeding in heavy rain and stand in an immobile, hunched position with necks retracted; similar behaviour is described for Lapwings *Vanellus vanellus* by Spencer (1953). I have also seen neck retraction by Goosanders *Mergus merganser* on water in heavy rain, and it occurs in White-winged Doves when sheltering young (Cottam and Trefethen 1968).

Beetham (1896) described an extraordinary posture adopted by nestling Purple Herons *Ardea purpurea* in heavy rain; they huddled together in a ring with backs nearly vertical and shoulders touching, necks hidden under their bellies: 'It was a very neat arrangement, the rain falling on their sloping backs was readily thrown off, while the heads were snug and dry in the tent-like interior.' Delamain (1933) found that young Kingfishers *Alcedo atthis*, exposed to rain just after leaving the nest burrow for the first time, stiffened their bodies and stretched out their necks, beaks pointing skywards. He commented that these birds, 'who had never been touched by a drop of rain, instinctively adopted an attitude which offers the least surface to the downpour.'

## (2) *Sheltering*

In heavy rain, especially in cold weather, it would clearly be of survival value for birds with plumage that is poorly resistant to wetting to take shelter, provided that feeding was not grossly interrupted. In the tropics, where very heavy rains of short duration are frequent, sheltering seems to be widespread. Mrs M. K. Rowan (*in litt.*) states that in Cape Province, South Africa, short heavy rains of up to six inches in two or three hours may occur. In such weather very few birds are seen, presumably because they are sheltering, and both flight and song appear to be inhibited. Dr C. H. Fry (*in litt.*) records large numbers of Red-throated Bee-eaters *Merops bullockii* sheltering in their burrows during heavy rain. He considers it likely that the overcast weather preceding rainstorms stimulates birds to take cover: in Nigeria, 'the arrival of a typical mid wet-season downpour is

generally heralded by hours of overcast, accumulating oppressiveness and relative humidity, and, between three and 30 minutes of the start of rain, by a strong, gusty wind; the rain itself usually develops from a few drops to a torrential downpour in a matter of seconds. Terrestrial passerines stop feeding when the wind rises, become restless and make for cover.'

M. P. Stuart Irwin (*in litt.*) has recorded a flock of Scaly Weavers *Sporopipes squamifrons* sheltering in a heavy tropical rainstorm, but Skead (1947) saw Cape Weavers *Hyphantornis capensis* feeding even in heavy rain. Rain in temperate regions rarely comes on so fast and never has the same intensity; nevertheless, it is probably more important for a temperate species to escape wetting than for a tropical one, because of the colder conditions and presumed greater scarcity of food in winter. The physical effect of rain in the tropics, because of its volume and intensity, must also be more important than in temperate regions through, for example, the washing away of nests, eggs and young. Schorger (1955) cited an old record of a migrating flock of the now extinct Passenger Pigeon *Ectopistes migratorius* being driven by heavy rain to shelter in trees, but he also gave another record of this species seen flying all day in rain. It is probable that the contradiction implied in this case and in others that follow is only apparent, and that sheltering usually occurs when rain is particularly heavy (most accounts are necessarily vague about the exact amount). Other factors, such as lack of food and cold, may influence behaviour.

Lack and Lack (1952) found that Swifts shelter in the nest during rain and, if the fall is heavy, may not emerge for most of the day; also that they dodge local storms, flying in front of and away from them. Nevertheless, Swifts have been seen soaring under thunderclouds in torrential rain (Pounds 1947). Broods of Ruffed Grouse tend to shelter in woods during rain (Bump *et al.* 1947), and hatched Partridge chicks may remain on the nest in continuous rain for as long as 24 hours (Hosking and Newberry 1940), behaviour which perhaps serves to prevent soaking of the plumage by contact with wet vegetation. E. J. Wise has informed me verbally that well-fed Woodpigeons in spring or summer show reluctance to leave the roost wood if the weather is wet, and that they may not do so all day, but I have a record of a large flock feeding in a field in heavy rain in winter. S. Cramp (*in litt.*) states that in his experience Feral Pigeons *Columba livia* regularly resort to ledges beneath overhangs and shelter from wind in heavy rain. I have seen a feeding flock of about 20 Jackdaws fly to a barn near-by to shelter after a few minutes' exposure to continuous and increasingly heavy rain; they returned to feed when the rain's intensity lessened. C. Felton has verbally reported a similar incident involving a large flock of juvenile Starlings, although I have a record of this species feeding in the open for 15 minutes in heavy rain; the latter

birds continually shook their plumage during the time that the rain was falling.

Felton and P. R. Greenwood (*in litt.*) have seen House Sparrows sheltering in rain in gorse bushes or under roofed bird-tables, and the latter observer also describes a Blue Tit *Parus caeruleus* sheltering from heavy rain under a large leaf. On the other hand, I have seen Pied Wagtails in open fields, and once a spring migrant Willow Warbler on turf, all feeding in heavy rain. In my experience gulls, such as Herring Gulls and Black-headed, will rest in flocks in heavy rain and show no activity or movement apart from occasional preening; more preening seems to occur when the intensity of the rain gets less and few will be seen flying if the rain is heavy. Hirundines flying around and presumably feeding in rain were observed by Dixon (1890) and by Dr G. L. Maclean (*in litt.*), and I have noted House Martins, Sand Martins and Swallows *Hirundo rustica* doing this in heavy rain.

Cessation of feeding of young Pied Flycatchers *Ficedula hypoleuca* by the parents in heavy rain was recorded by Hosking and Newberry (1940), the male disappearing and the female remaining in the nest hole. Mendall (1937) described similar behaviour by Bay-breasted Warblers *Dendroica castanea*, the female in this case brooding the young on the open nest. It is likely that in both cases the male parent was sheltering from the rain. Robinson (1947) wrote of the Magpie Lark *Grallina cyanoleuca*, which has an exposed nest, that 'in very wet weather there is less urge to brood and as a result shifts are much more regular, as the sitting bird will often call up its mate very insistently after it has been sitting more than twenty minutes, or even leave the nest.' This behaviour may reasonably be interpreted as a conflict between brooding the young and taking shelter from the rain. Covering of exposed young by the parent in heavy rain has been recorded in the Spoonbill (Beetham 1896), Buzzard (Hosking and Newberry 1940, R. W. Robson *in litt.*), Greenshank (Nethersole-Thompson 1951), Woodpigeon (Hosking and Newberry 1940), Cape Robin *Cossypha caffra* (Mrs M. K. Rowan *in litt.*) and Reed Warbler *Acrocephalus scirpaceus* (Brown 1946). This behaviour is clearly widespread, but there is an unfortunate absence of detailed documentation. The Black-throated Thistletail *Schizoeaca harterti*, however, an open-nesting species, has been observed feeding young in spite of heavy rain and cold in its very wet habitat in the Bolivian Andes (Vuilleumier 1969). Hawkins (1970) described some remarkable behaviour by an incubating Moorhen *Gallinula chloropus* which covered itself with a sheet of waste polythene whenever it rained. Was this insight learning or do birds occasionally cover themselves naturally against rain?

There is clearly a need for detailed field observation on the whole subject of birds sheltering from rain: the behaviour obviously occurs, but how frequent it is and the conditions which bring it about in



different species await systematic study. At present, there is little more in the literature than vague statements such as that of Dixon (1890) that 'birds' (unspecified) quickly disappear on the approach of heavy thunderstorms, and emerge and start singing again when the rain stops. Williams (1941) has shown that the Chestnut-backed Chickadee *Parus rufescens* and the Bewick's Wren *Thryomanes bewickii* both tend to roost at higher light intensities (i.e. earlier in the day) in rainy than in dry weather.

Brown and Amadon (1968) stated, 'In wet countries, birds of prey will often roost in caves or under a rocky overhang, when roosting on crags, and are thus able to keep their plumage dry.' The use for roosting of closed nests and cavities, both self-made and natural, is widespread in birds and was discussed by Skutch (1956), who considered that protection from cold or rain was the explanation. In this respect, it is interesting that the nests of some members of two tropical families, the weavers (Ploceidae) and the sunbirds (Nectariniidae), are highly efficient in resisting rain. Skead (1947) showed that the nest of the Cape Weaver was so resistant to water that no penetration occurred even when several gallons were poured over it, the water simply running down the sides and dripping off; if the nest was inverted, however, water did penetrate. Skead (1967) also found that the dangling nests of certain sunbirds shed rain well, in spite of their light and open structure. He considered the shape of such nests important: the apex is small and the sides are steep, facilitating downward movement of water drops by gravity; in some cases, a sloping hood over the entrance probably prevents rain entering through the hole. Skead found that a dangling nest of a Collared Sunbird *Anthreptes collans* withstood three days of rain, becoming only slightly damp inside on the roof. Nests of other sunbirds, however, not dangling but built in foliage and rounder in shape, like that of the Orange-breasted Sunbird *Nectarinia violacea*, absorbed rain until the lining became wet. The woolly nature of the lining (kapok and protea down) lent itself to absorption and retention of moisture, unlike the fibrous lining of the previous species. Yet the down-lined nest of the Lyrebird *Menura superba* is apparently rain-proof (Pratt 1951).

### (3) *Inhibition of flight and migration*

It is the general view that migration is lessened by rainfall, but, as Lack (1960) pointed out, statistical evidence is needed. Parslow (1969) wrote, 'It is generally accepted that widespread and continuous rain has an inhibiting effect on migration, both while it is in progress and also in preventing migrants from actually setting off' and again, 'While it is hard to be sure, owing to the fact that rain echoes obscure those from birds, it is probable that negligible numbers of migrants set off at dusk from places where it is raining at the time.'

The main problem in attempting to elucidate the effects of rain on migration is that associated weather factors invariably occur with the rain, in a variety of combinations, and it is therefore difficult to be sure that an observed effect is solely or largely the result of rainfall. Phillips and Lee (1966) had this problem when attempting to discover the effects of weather factors on migrating Manx Shearwaters *Puffinus puffinus* observed in sea-watches from land. They found that the flight-lines moved closer to shore with the onset of bad weather, such as rain or mist; a steady stream of Fulmars *Fulmarus glacialis* past the observation point ceased with the onset of rain, and they considered that the birds had come down on the sea. Nisbet and Drury (1968), by applying multivariate analysis to migration data, attempted to separate out the effect of rain on migration. Their findings were that the migration of song-birds was slightly suppressed by rain, that migration was usually suppressed by cold rain; and that migration was significantly correlated with a lack of rain at the destination of the following day, anticipatory behaviour which they considered an adaptation to avoid rain on arrival.

The resting of birds on the ground in rain has already been alluded to, as has the impaired flight of Peregrines in rain. How widespread is inhibition of flight and what are the reasons for it? It is possible that the wings are more easily wetted than other parts of the plumage, and resting birds have their wings folded and partly covered by adjacent contour feathers. A more simple explanation, however, likely to apply in some cases at least, is that feeding efficiency on the wing is reduced by rain to a level at which expenditure of energy for flight is not worthwhile.

Brown and Amadon (1968) stated that wet weather in the morning prolongs the period that birds of prey spend at the roost. Brown (1955) also argued that the habit of making a larder of kills at the nest, apparently more highly developed in Golden Eagles *Aquila chrysaetos* in Scotland than in African eagles, is related to weather: ' . . . in Africa . . . on a wet day the eagles kill later than on a dry day . . . a wet morning generally clears up about eleven, and the sun comes through; one may then expect the eagle to kill and bring prey to the nest in the early afternoon. In Scotland there are plenty of wet mornings which never clear up when the eagle may have difficulty in killing all day. Falconers know that eagles and other hawks do not like flying with their wings wet, and there must be many a day in the Highlands when a hunting eagle could hardly avoid becoming wet and bedraggled . . . it has seemed to me possible that the eagle lays in a store in good weather which will tide her over bad.' Hen Harriers *Circus cyaneus* also apparently rarely fly in wet weather (Olney 1969) and adult Spoonbills when wetted by rain fly 'with difficulty' (Beetham 1896). But I have seen Greenshanks flying overland in heavy rain.

(4) *Comfort movements in rain*

McKinney (1965) found that the rate of wing-flapping by wild flocks of White-fronted Geese *Anser albifrons* increased in short periods of rain, but dropped in prolonged heavy rain. He considered that the function of wing-flapping in this context was the removal of adherent water drops from the feathers. Captive Australian White-eyed Ducks (personal observations) perform a variety of preening movements after being showered with water from a hosepipe, including breast-preening, wing-whirring, head-scratching and oil-distribution movements. If the birds are showered again before the movements are completed, they stop and resume the postures described on page 406. If showering is interrupted, even for only a few seconds, the preening movements restart immediately. In the case of Skylarks *Alauda arvensis*, Delius (1969) found that bodyshaking was stimulated by fine slow rain and inhibited by heavy rain; on the other hand, preening was inhibited by rain of any kind.

A wide variety of birds rainbathe, by deliberately exposing the plumage to rain and so wetting it. Others brush their feathers against water-soaked vegetation. Simmons (1965) gave a brief discussion of this behaviour and it will not be considered here. The advantages of rainbathing could be that a more controlled wetting of the plumage is achieved than by bathing in standing water and, of course, that it allows bathing to occur where standing water is not available. It may also have a cooling function in some circumstances.

Plumage drying after rain will not be discussed here, but it may involve both wing-spreading (Clark 1969) and sunbathing (e.g. Gush 1951).

(5) *Other behaviour associated with rain*

Several authors and correspondents state that rain inhibits song, but information is largely vague. Beetham (1896) found that, on the approach of a thunderstorm, Reed Warblers stopped singing and Purple Herons stopped calling. Red-backed Shrikes *Lanius collurio* also apparently cease singing in rain (Austin 1962). In South Africa, the local name of the Hammerkop *Scopus umbretta*, 'N'jaka or Rain Doctor, is received from the natives from its peculiarity of screaming loudly before the rain sets in' (Holub 1894).

Pratt (1951) noted that the female Lyrebird appeared to work hardest at nest construction in rainy weather, and he suggested that the material used was most pliable when moist. Fleay (1937) found that Brush Turkeys *Alectura lathami* opened up the top of the egg mound in rain and turned over the material; they covered the mound again on the advent of sunny weather. The reason for this behaviour is not clear, but possibly moisture increases fermentation and hence heat production in the mound.

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## SUMMARY

The most important direct effect of rain on birds in general is wetting of the plumage and the possibility of death resulting from hypothermia, but it is probably not a particularly significant mortality factor in most cases, except at the chick stage. A wide variety of birds take shelter, or rest immobile, in rain; some cover their young; and flight appears to be inhibited. These effects of rain await detailed study, and much of the information available at present is vague and anecdotal. The low level of published material is paralleled by an apparent lack of unpublished data: a request for information in *British Birds* resulted in only six replies. It is hoped that this review will stimulate observation of birds in rain, and that this will clarify the numerous queries raised in the text above.

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## Numbers and distribution of Long-tailed wintering Ducks in northern Europe

*S. Mathiasson*

During the last 25 or 30 years the Long-tailed Duck *Clangula hyemalis* has decreased considerably as a breeding species in Scandinavia and is stated to have done so also as a winter-visitor in the southern Baltic (Curry-Lindahl 1957, 1958, 1959, 1960). In 1960 Curry-Lindahl discussed the effect of oil pollution in the Baltic on wintering birds in general and concluded that the Long-tailed Duck was suffering more than any other species. For instance, in the winter 1954/55 the majority of about 10,000 ducks and auks found on the Swedish coast were Long-tailed Ducks and he believed that thousands were being destroyed in this way almost every year. Further, as this species keeps to the open sea in winter, he thought it very likely that even more had died than it had been possible to ascertain from shore counts. He also quoted reports that flying flocks of Long-tailed Ducks often alight on floating oil because this makes the water less rough, so that such patches serve as veritable death-traps.

This situation has been closely followed by the International Council for Bird Preservation and the International Wildfowl Research Bureau. Following a suggestion by Dr Kai Curry-Lindahl at a meeting of the Executive Board of the I.W.R.B. in Wilhelmshaven, Germany, in 1960, it was decided to attempt a census of wintering Long-tailed Ducks in the Baltic and the North Sea in 1961/62 and again in 1962/63, though covering only part of the area in the latter winter. All countries bordering on the Baltic participated, as did most of those round the North Sea. The censuses were organised on a national basis and the task of integrating all the data was later given to me.

## METHODS

Unfortunately, observers in different places obtained their results in widely varying ways. Some carried out regular counts within limited areas throughout the winter; some made occasional special counts along large sections of coast or from ships at sea; and others reported what they saw by chance. In addition, very few observations referred to the same dates and a large number of Long-tailed Ducks seen at one place on one day may then have moved to an adjacent or more distant area to be recounted there on another day. It is therefore impossible to give any total figures for wintering Long-tailed Ducks in the Baltic and the North Sea, but it is worth setting out the numbers reported from different parts of the region and there are also trends indicating the general winter distribution as well as some information on arrivals and departures, winter movements and so on. Ideally, any future investigation of this kind must have a clear framework of counts by specified methods on selected days which are the same at all places and these should be supplemented by simultaneous observations from the air and from boats. The best way of obtaining total counts would be during severe weather when these ducks gather at certain places off the coasts outside the ice.

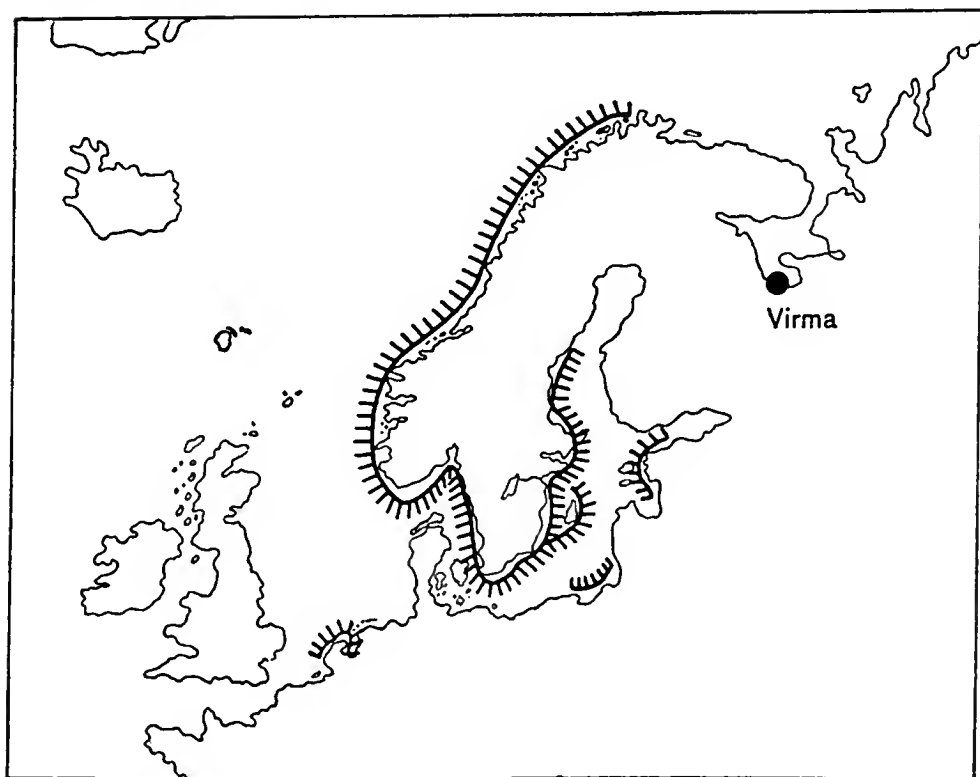


Fig. 1. Areas around the Baltic and North Sea where counts were made of Long-tailed Ducks *Clangula hyemalis* in 1961/62 or 1962/63 (areas providing only estimates are omitted). The overland migration from and to the White Sea was studied at Virma

The countries which contributed to the survey in 1961/62 and 1962/63 were Finland, the Estonian SSR, the Lithuanian SSR, Poland, Germany, Sweden, Norway and the Netherlands (see fig. 1). Much the most extensive material came from the vast coastlines of Norway and, more particularly, Sweden where the analysis of the international results was organised by the Zoological Department of the Nordiska Museet and Skansen in Stockholm with the aid of a grant from the Swedish Game Research Council and with the extensive co-operation of the Swedish Society for the Conservation of Nature.

## NUMBERS

### *General*

As already stated, it was impossible to arrive at any total figures for the population of Long-tailed Ducks wintering in northern Europe and estimates varied greatly. For example, Dr G. Bergman of Finland used radar studies to estimate about a million in the winter 1961/62. By contrast, Professor E. Kumari of the Estonian SSR regarded the neck of water between Tallinn and Helsinki (about 80 kilometres) as a gateway to a migratory stream and considered that the numbers of Long-tailed Ducks passing this way during each of the four or five autumns prior to 1963 could be roundly estimated at about 20 million 'though it is very likely that the real figure is still greater' (Kumari 1963); but this estimate greatly exceeds those of other investigators. In addition, Dr F. Goethe of Germany suggested (*in litt.*) that differences might be caused by large numbers of these ducks staying in the area of the White Sea during mild, ice-free winters.

### *Winter 1961/62*

**Estonian SSR** The highest numbers occur in spring and autumn, and only a limited population stays for the winter. Kumari (1963) recorded that the winter 1961/62 was moderate without prolonged periods of severe frost. Nevertheless, ice kept down the numbers close inland in the Gulf of Riga and the straits of western Estonia. Further out to sea, off the west coasts of the islands of Hiiumaa and Saaremaa and in certain parts of the Gulf of Finland, the species was more in evidence. Whereas inshore counts yielded only a few dozens, observers in these latter areas recorded up to 500 in a day and at Poosaspea as many as 1,200.

**Lithuanian SSR** According to Kumari (1963), A. Vaitkovicus reported that there were several thousands in the neighbourhood of Ventes Ragas at the end of November and beginning of December, but that the numbers diminished rapidly towards the middle of December and that all had left by the end of that month; fluctuating numbers between 100 and 300 spent the whole winter near the coast at Palanga.

**Poland** Information was received only from Gdansk Bay where 300 at the beginning of October increased to 900 at the end of that month, to between 1,000 and 1,500 during November and to 2,000 from December to mid-February; the numbers then dropped to 1,000 in March, 200 in April and 80 in the first ten days of May, after which no more were seen (J. Sokolowski).

**Germany** Dr F. Goethe estimated that the total numbers along the whole of the Baltic coast of Germany had been about 10,000 in recent winters; according to

G. Schmidt of Wilhelmshaven, however, the population off the coast of Schleswig-Holstein (about one third of the German Baltic coast) was between 11,000 and 12,000 in 1961/62. No special reports were received from the North Sea coast of Germany, but Dr Goethe informed me that Long-tailed Ducks are scarce there and only at all frequent in hard winters, though they are more numerous and regular off the mussel banks of Amrum and Sylt.

**Sweden** Observations were made throughout the winter both along the coast and on the open sea. In some places there were regular counts, but in others only random records. In September a single flock of 23 was the sole report and in October the total was still a mere 1,126. In November, however, much higher numbers gave a figure of 20,310, and a monthly average of about 20,000 was maintained through December and January. In February only 10,631 were reported, but in March the total rose to its highest peak of 25,879. In April the figure was 17,310, in May only 1,324 and in June none. These are the totals of numbers recorded at about 70 different localities scattered along and just off the east and west coasts of Sweden; this coastline is about 2,500 kilometres on the map, but its highly indented nature means that the actual distance is 7,624 kilometres. In addition, special investigations not included in these totals were carried out by Gustaf Liljeström, who covered 649 kilometres by motor launch from the archipelago of Östergötland along the Swedish east coast down to Karlskrona and out to the island of Gotland. To the north of Hårdsskär in the archipelago of Östergötland he calculated a density of 84,000 Long-tailed Ducks per 100 square kilometres; while to the north of Öland his corresponding figure was no less than 250,000. These estimates give some idea of the immense numbers occurring in that region, but also show how difficult it is to make accurate counts. In the same area the observations from land produced totals of only 14,677 in January, 5,174 in February and 18,466 in March, and yet these figures represent 74%, 49% and 71% respectively of the numbers reported from the whole of the Swedish coastline during those months. Consequently, even these land-based counts are evidence of the concentrations of Long-tailed Ducks in that part. Such concentrations are not known elsewhere along the Swedish coast.

**Norway** The total reported from inshore waters on a coastline of about 20,000 kilometres was 28,768 (table 1); this figure was thought to be much too low, however, and it was estimated that at least 50,000 winter along the coasts of Norway (Lund 1962). Reports were returned from only 44% of the coastal districts, and the 28,768 was the sum of the means of all winter counts in each district.

**Netherlands** The situation along the shore was comparable with that on the North Sea coast of Germany: according to J. A. Eygenraam of Arnhem, a total of only 14 individuals was recorded in the winter 1961/62. On the other hand, regular counts by Commander J. J. C. Tanis off the coast of Terschelling during 1961-63 showed that Long-tailed Ducks are regular visitors to deeper water over about 500 metres from the beach: they were seen there from early October to late February, with the maxima in December when small flocks of five to 60 were recorded daily and a total of 50 to 60 per square kilometre was estimated. The numbers off the Dutch coast are thus likely to be higher than previously thought because counts are rarely made away from the shore.

### *Winter 1962/63*

**Finland** Dr G. Bergman reported that not a single Long-tailed Duck was recorded round the coast during very severe ice conditions, but that a small area of the Finnish Baltic was open the whole winter and radar showed no great change in the population there between 1961/62 and 1962/63. The spring migration of the Long-tailed Duck in southern Finland was analysed by Bergman and Donner (1964).



**Estonian SSR** According to Professor E. Kumari, the winter 1962/63 was generally very severe. In November and early December concentrations of between 20 and several hundred Long-tailed Ducks could be seen in ice-free localities, but then the western part of Estonia and most of the Gulf of Finland were frozen from mid-December. The sea stayed free of ice longest to the west of the Estonian islands—round the western end of Hiiumaa, for instance—but even there freezing occurred after 18th-20th February. Some days before that happened, between 10,000 and 15,000 Long-tailed Ducks could be counted in front of the ice barrier.

**Poland** J. Sokolowski reported that the species was first seen in Gdansk Bay on 10th October and that the total rose to 2,200 during 1st-10th December, but the sea was frozen from mid-December to late March and none was seen then until small numbers in the spring.

**Germany** According to Dr F. Goethe and G. Schmidt, there were very few Long-tailed Ducks even in ice-free localities at Heiligenhafen, Fehmarnsund, Grossenbrode and Neustadt on the German Baltic coast up to the end of the year, but then some hundreds were seen along the ice from January to March. On 17th March 2,200 were recorded at Hohwachter Bucht and these numbers then increased during April until about 12,000 were seen on the 13th.

**Netherlands** There were again very few observations along the coast, a total of only 39 individuals being reported from seven localities, including one flock of 16 inside the Waddensee near Terschelling on 13th January.

To sum up, these counts and estimates of migrating and wintering Long-tailed Ducks give some idea of the numbers involved in different parts of the Baltic and the eastern North Sea, but the figures obtained are no more than a first step and a great deal of further information is needed. In particular, it will be necessary to learn more about the numbers passing along the Estonian coast and further south, and about the concentrations wintering in various coastal areas.

#### GEOGRAPHICAL DISTRIBUTION

As we have seen, there are indications of a very strong migration of this species through the Gulf of Finland. According to Professor E. Kumari and Dr G. Bergman, this region seems to be a bottleneck through which most of the Long-tailed Ducks coming to the Baltic pass to and from their winter-quarters. The main wintering areas, each accommodating some thousands normally and at times up to 15,000 in a single flock, appear from the reports to be in west Estonian waters, in Gdansk Bay in Poland, along the Baltic coast of Schleswig-Holstein in Germany and off the east coast of Sweden including the waters around the islands of Öland and Gotland. The figures available suggest that the most important of these areas is the east coast of Sweden where Long-tailed Ducks occur in high numbers all through the winter and where special investigations have indicated a density which has no counterpart in other reports.

Judging from Norwegian data (table 1), the main winter-quarters there are in the northernmost coastal districts, no less than 63% of the Long-tailed Ducks reported being found to the north of the

Table 1. Numbers of wintering Long-tailed Ducks *Clangula hyemalis* reported off each province of the Norwegian coast in winter 1961/62 (Lund 1962)

Province	Total coastal administrative districts	Number providing information on Long-tailed Ducks	Total numbers of Long-tailed Ducks seen
Ostfold	12	4	365
Akershus	8	0	0
Oslo	1	0	0
Buskerud	3	0	0
Vestfold	17	2	150
Telemark	5	2	325
Aust-Agder	13	4	110
Vest-Agder	14	2	500
Rogaland	40	6	1,215
Hordaland	53	8	2,205
Sogn og Fjordane	33	5	870
More og Romsdal	66	14	2,310
Sør-Trøndelag	32	10	1,380
Nord-Trøndelag	31	10	1,125
Nordland	60	24	6,210
Troms	31	19	4,403
Finnmark	17	12	7,600
TOTALS	436	122	28,768

Fig. 2. Migration pattern of Long-tailed Ducks *Clangula hyemalis* wintering in northern Europe. The winter distribution indicates that Norwegian populations have little connection with those moving from the White Sea to the Baltic

Arctic Circle and only 5% in the waters between Stavanger and the Swedish border. This distribution indicates that Norwegian Long-tailed Ducks in general have little connection with those wintering in the Baltic. The two populations must reach their winter-quarters by different routes (fig. 2) and it seems likely that they originate from different breeding areas, the Norwegian birds being probably of Fenno-Scandian origin and the Baltic ones probably of north Russian origin. Between the wintering grounds of north Norway and those of the Baltic are areas from which very few or no wintering or migrating Long-tailed Ducks are reported, such as the Gulf of Bothnia, the west coast of Sweden, the Skaggeak and the southern North Sea.

#### TIMING OF MIGRATION

According to Kumari (1963), the Long-tailed Ducks left the White Sea area of north Russia mainly between 2nd and 9th October in 1961, as shown by observations at Virma (see fig. 1) where some 30,000 were recorded. Generally, the migration begins there in the second half of September and reaches a peak about the beginning of October, but sometimes not until towards the middle of October; the return migration in spring is strongest in May and was outstandingly heavy in that month in 1955 and 1960. In Poland in 1961/62 the figures already given show that numbers arrived in Gdansk Bay in October (300-900) and early November (1,000-1,200) and reached a peak in late November and early December (1,500-2,000); in the spring most left in April, but 80 were still present on 10th May. In Germany Long-tailed Ducks appeared in early November and numbers increased until February or March, while the reports from the Netherlands indicated a small arrival in mid-November and a final departure in early March.

In Sweden in 1961/62 the first Long-tailed Ducks were reported in mid-September, but the small numbers during October (total 1,126) indicated that the real immigration took place in November, from the middle of which month flocks of up to 2,000 were seen at several places (total 20,310); the majority of these stayed for the winter and were still present in April (total 17,310), but they then quickly disappeared and the last sizable flock (500) was reported off Gotland on 13th May. It is worth adding that continuous records of the numbers were kept throughout this winter at three different light-houses (Svenska Björn, Almagrundet and Grundkallen) in the archipelago ENE of Stockholm, right at the northern limit of the main wintering area, and the fluctuations at these places were almost identical. At Svenska Björn, for example, 4,746 were noted in November, 2,875 in the first week of December and only 693 in the rest of that month; from then until the end of January numbers were small and irregular and, though more were seen during February and March, these seemed likely to be involved in winter movements as the



PLATE 67. Little Egret *Egretta garzetta*, France, April 1967. Below, male Capercaillie *Tetrao urogallus*, Sweden, August 1970. pages 424-426. *Philip Harrison*







PLATE 68. Spoonbills *Platalea leucorodia* high overhead, Belgium, September 1970.  
Below, Whooper Swans *Cygnus cygnus* in flight, Kent, March 1963 (Pamela Harrison)





PLATE 69. Flight of male Barrow's Goldeneyes *Bucephala islandica* and, below, pair of Long-tailed Ducks *Clangula hyemalis*, both Iceland, June 1965 (Pamela Harrison)



PLATE 70. A single Barnacle Goose *Branta leucopsis* flying up from the ground, followed by a pair of Greylag Geese *Anser anser*, Kent, October 1969 (*Pamela Harrison*)



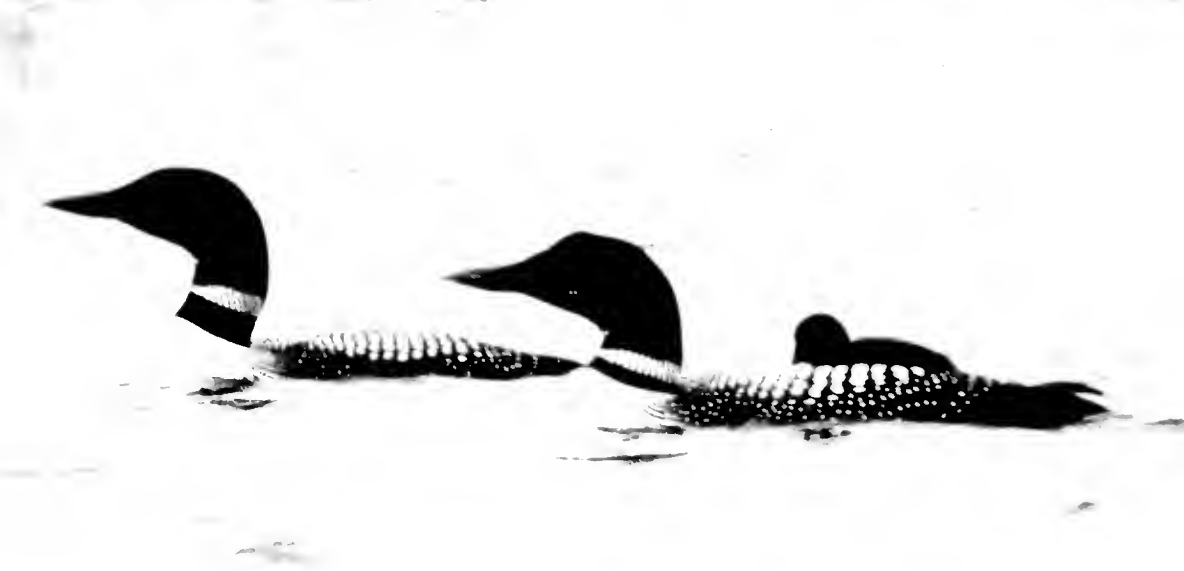


PLATE 71. Above, family parties of Harlequins *Histrionicus histrionicus* and Great Northern Divers *Gavia immer*, Iceland, August 1967 and June 1965. Below, group of Greylag Geese *Anser anser* on the alert, Belgium, September 1972 (Pamela Harrison).







PLATE 72. Top, Pectoral *Calidris melanotos* and Semipalmated Sandpipers *C. pusilla*, Kerry, October 1968. Centre, Curlew Sandpiper *C. ferruginea*, Kerry, August 1969. Below, two Purple Sandpipers *C. maritima*, Iceland, August 1967 (Pamela Harrison)

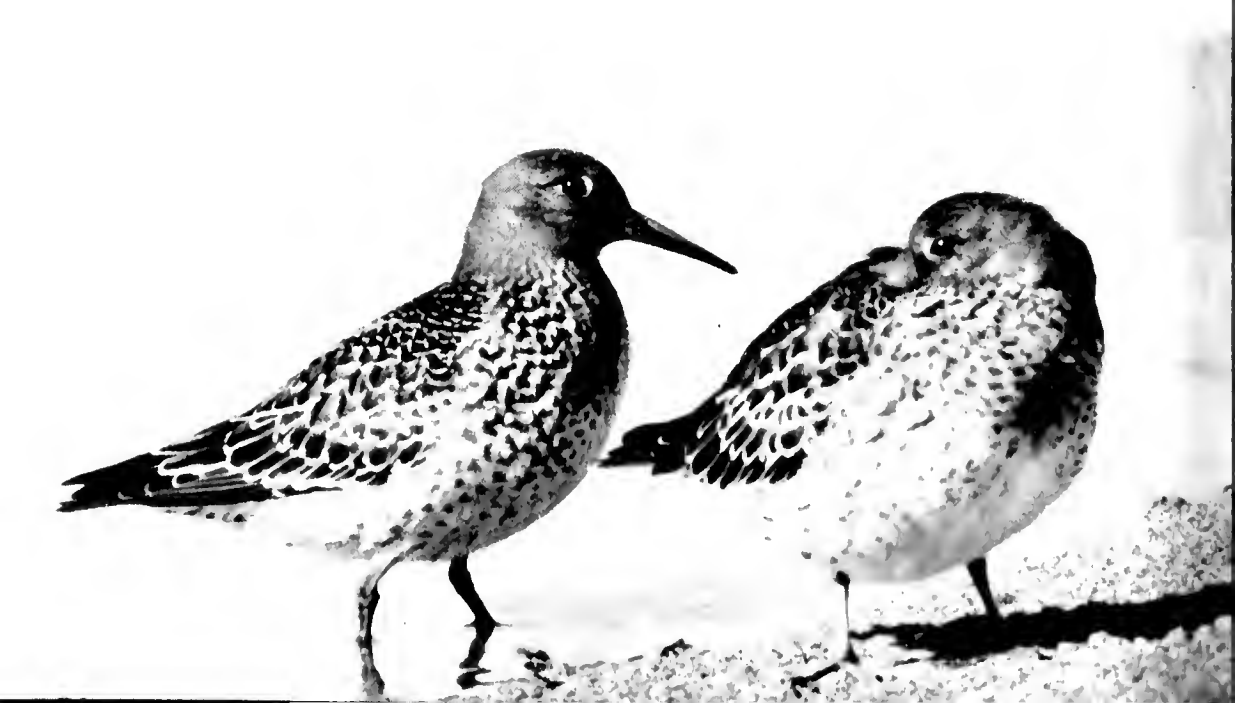




PLATE 73. Curlew *Numenius arquata* in flight, Kent, September 1968. Below, party of Black-tailed Godwits *Limosa limosa*, Co. Cork, October 1968 (Pamela Harrison)





PLATE 74. Adult Short-eared Owl - *Isio flammeus*, Kent, June 1968 (Pamela Harrison)

birds concerned were rarely recorded more than on a single occasion.

From the above we may conclude that Long-tailed Ducks migrate to winter quarters in the Baltic region mainly during October, having left the White Sea area in the first week of that month. Numbers increase on both sides of the Baltic (Sweden and Poland) during November.

#### WINTER MOVEMENTS

There is a tendency for the numbers of Long-tailed Ducks to increase in the south-western Baltic during the winter, probably because of climatic conditions in the eastern and middle parts. The winter 1962/63 was generally very severe and by mid-December most of the Gulf of Finland and some areas of the coastal waters of Estonia were ice-bound. Before that, in November and early December, Long-tailed Ducks had occurred at many places. By late January and early February even much of the sea in the westernmost part of the Gulf of Finland was iced over and on 18th-20th February a mass south-west migration of Long-tailed Ducks took place in Estonia as conditions became worse and worse; throughout March the shore waters were completely covered with ice. In April large numbers arrived on the German Baltic coast, about 12,000 being recorded at Westmarkelsdorf (the northern part of Fehmarn) on the 13th and 'still more further out in the sea'. On the 14th there were 6,320 at this locality, while 1,352 and 945 were counted flying to the north-west and north-east respectively.

G. Schmidt suggested, following Naumann (1904), that large numbers had left the Baltic altogether in the severe ice conditions of 1962/63 to winter in the North Sea or further south and that the concentrations seen at Fehmarn and other places along the German Baltic coast were these same birds resting on their way back. Observations of Long-tailed Ducks flying WSW between Kiel and Neustadt in February and a corresponding return from the west in April might seem to support this hypothesis. Dr F. Goethe informed me, however, that those at Fehmarn could not have come from the Elbe estuary or the North Sea German Bight and the same held for Dutch waters where only a handful was reported. We have seen that large numbers (10,000 to 15,000 in one locality) were still present in western Estonia until 18th-20th February when they disappeared to the south-west, and the westward movement noted between Kiel and Neustadt may have been part of the same migration, but we still do not know where these birds spent the latter part of the winter nor whether any of them really left the Baltic.

#### FLOCK SIZE

The Long-tailed Duck has a social tendency to form large flocks



within its main winter-quarters and the average size of such flocks becomes smaller the further they are from these areas. For example, the chief wintering grounds in Sweden include the coast of Småland and the island of Gotland where 92 (64.8%) of 142 flocks in 1961/62 were of more than 40 birds and totalled 29,847, while the 50 flocks of less than 40 totalled only 937; 13 flocks exceeded 500, the largest ones in the 2,000-3,500 range. By contrast, in the Gulf of Bothnia, which is outside but quite close to the main wintering grounds, only 28 (35.5%) of 79 flocks exceeded 40 birds and these totalled only 2,899; while off the west coast of Sweden, which is further from the chief areas, just four (4.6%) of 87 flocks were of more than 40 and totalled a mere 458 (while the 83 others totalled only 706). The small numbers seen off the Dutch coast are a further indication of this trend. In severe weather, however, large concentrations may be forced west of the normal winter-quarters, as we have seen happened in 1962/63 when a single flock of 12,000 was recorded at Fehmarn and some (including a party of 16) reached the Netherlands.

#### DISTRIBUTION OF SEXES

Table 2 summarises data on the sexes of Long-tailed Ducks in the flocks along the Swedish coast in 1961/62. Possible sources of error include variation in the ability of observers, the likelihood of confusing young males and females, and the fact that some of the proportions were based on random samples which may not have taken sufficient note of any uneven distribution of the sexes within the flocks. Nevertheless, the figures in individual reports were surprisingly close to the general trends in table 2. The most interesting facts which emerge are the preponderance of males in the main Swedish winter-quarters and the preponderance of females in the surrounding areas; the mean for the whole Swedish coast showed a 25% excess of males.

**Table 2. Distribution of sexes of Long-tailed Ducks *Clangula hyemalis* along the coast of Sweden in 1961/62**

The Småland figures include those from Öland and the Uppland ones those from the Stockholm archipelago

Province	Total records	Males	Percentage	Females	Percentage
Skåne	73	3,618	57.2%	2,698	42.8%
Blekinge	157	2,851	54.6%	2,369	45.4%
Halland	10	23	47.0%	26	53.0%
Småland	98	25,164	61.5%	15,735	38.5%
Gotland	17	9,271	55.5%	7,432	44.5%
Bohuslän	54	328	48.9%	343	51.1%
Södermanland	59	3,955	56.9%	2,991	43.1%
Uppland	232	6,269	40.1%	9,347	59.9%
Gulf of Bothnia	42	275	31.1%	608	68.9%

Table 3. Numbers of Long-tailed Ducks *Clangula hyemalis* in waters of different depths along the coast of Sweden in 1961/62

Depth in metres	Total records	Total ducks	Percentage of all
0-5	75	9,406	25.9%
5-10	55	2,730	7.5%
10-15	25	20,018	55.3%
15-20	9	1,926	5.3%
20-25	10	1,883	5.2%
25-30	3	12	—
30-35	11	383	1.1%
35-40	1	3	—
40-45	1	8	—

## HABITAT AND FOOD

Table 3 demonstrates that no less than 55.3% of the feeding Long-tailed Ducks seen along the Swedish coast were swimming in waters 10-15 metres deep and a further 33.4% in still shallower places. Practically all were in waters less than 25 metres deep, though near Härnösand a party of 15 was recorded diving in a depth of 40-50 metres. Many observers stressed a connection with shoals and banks, and the link appears to be one of food. Molluscs, crustaceans, small fishes and 'seaweed' were among the items specifically mentioned and, in particular, the edible mussel *Mytilus edulis* seems to play a most important role. For example, 2,000-3,500 Long-tailed Ducks were seen between 15th November and 13th December 1961 in a restricted area east of Öland where shoals 5-20 metres below the surface have, according to local fishermen, the largest populations of mussels in the region. Six females and one male, shot above another shoal to the north on 1st November 1964 and sent to the Natural History Museum at Göteborg, had nothing but shells and shell fragments of mussels in their stomachs. Parallel observations outside Sweden were few, but Dr F. Goethe also reported that the species was rather more frequent and regular around the mussel banks of Amrum and Sylt than on other parts of the German North Sea coast.

## SUMMARY

The Long-tailed Duck *Clangula hyemalis* has decreased as a breeding species in Scandinavia and is believed to have done so in its winter quarters in the southern Baltic. The International Wildfowl Research Bureau attempted a winter census in the Baltic and North Sea in 1961/62 and 1962/63. Countries contributing were Finland, the Estonian SSR, the Lithuanian SSR, Poland, Germany, Sweden, Norway and the Netherlands, but methods varied from regular local censuses to counts along large sections of coast or from ships, as well as chance observations. Total figures were therefore impossible, but this paper summarises the reports by countries, assesses the main wintering areas and discusses timing of migration, winter movements, flock size, sex ratios, habitat and food.

Radar was used in Finland to estimate a winter population of a million, and the

westward autumn passage through the Gulf of Finland was believed to involve as many as 20 million, but actual coastal counts were much smaller. Nevertheless, these suggested that important wintering areas included west Estonian waters (10,000-15,000 in February), Gdansk Bay in Poland (2,000+ in December-February), the Baltic coast of Schleswig-Holstein (11,000-12,000) and south-east Sweden (20,000 in November-January, 26,000 in February). Migration overland between the White Sea and the Baltic is greatest in early October and May. In the main winter quarters most flocks were of 40-3,500 (142 flocks averaged 217), whereas in peripheral areas few flocks exceeded 40 (87 flocks averaged only 13). In Sweden a preponderance of males in the main winter quarters was partly offset by an excess of females elsewhere, but there was a mean 25% excess of males. Practically all feeding Long-tailed Ducks were in waters less than 25 metres deep, mostly 10-15 metres or less; the edible mussel *Mytilus edulis* seems to be an important food.

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## British bird-photographers

### 13 Pamela Harrison

#### *Plates 67-74*

Born in 1929, Pamela Harrison has lived most of her life in Kent. She was educated at Downe House and went on to graduate M.B. and B.S. from the Royal Free Hospital in London. Now she is part-time Assistant Medical Officer with the Kent County Council, concerned with infant welfare. In 1953 she married Dr Jeffery Harrison who is in general practice in Sevenoaks and gives a great deal of his spare time to ornithology, particularly to the conservation of wildfowl. They have two children, Guy (15) and Judy (13), and the whole family is interested in wildlife and field sports, especially wildfowling and riding. With

tent and caravan, they have made family expeditions to Iceland, Greenland, Lapland, the Camargue, Spain, Eire and many of the wilder parts of Britain.

Pamela took up photography in 1959 as her contribution to the family's concern with natural history. She is interested in all forms of photography, but particularly of birds and other animals, and has received enormous help and encouragement from her father, Eric Carter-Braine, himself a keen amateur photographer, as well as from the boundless enthusiasm of her husband. She has learnt largely by trial and error, nearly always working under conditions more often experienced by wildfowlers than photographers and has come to specialise in wildfowl (plates 68-71) and waders (plates 72-73) by stalking them in their natural surroundings.

After experimenting briefly with a Mamiya  $2\frac{1}{4}$ -inch square, Pamela decided that the camera most suited to the tough conditions was a Leica 35 mm. She bought her first M3 in 1960 and has remained faithful to this type ever since. Usually carrying three camera bodies, she has found that she must restrict her lens requirements to the minimum because of the weight; even though her favourite is a 200 mm Telyt, however, both 400 and 560 mm Telyt lenses are also in constant use. Of the accompanying photographs, plates 67b, 70a and 73b were taken with the 200 mm, plates 71c and 72b with the 560 mm and all the rest with the 400 mm, except plate 70 for which she used a 280 mm follow focus. Sometimes she also turns to the 50 mm and 90 mm lenses on the coupled rangefinder. She never carries a tripod, but often lies flat to steady the hand-held lens. She prefers to work with Ilford FP4 film, but in very bad conditions will use Kodak Tri X. Although she takes colour when the opportunity arises, she has always liked better to work with black-and-white. All printing is done at home.

Pamela has illustrated a number of books by other members of the Harrison family: *A Wealth of Wildfowl* (1967) by her husband, Jeffery; *Bird Taxidermy* (1964) and *Bristow and the Hastings Rarities Affair* (1968) by her father-in-law, Dr James M. Harrison; and the first two volumes of *The Mammals of Arabia* (1964, 1968) by her brother-in-law, Dr David Harrison (and she is at present at work on the third volume). Her photographs have also been used to illustrate many scientific and technical papers by all three Harrisons and popular articles by her husband. She has photographed a number of vagrant birds to assist their identification, and these and other examples of her work have been published in *British Birds*, *Bird Study*, the *Bulletin of the British Ornithologists' Club*, the *Wildfowl Trust Annual Report*, the *Irish Bird Report* and the *Kent Bird Report*.

As honorary photographer to the Wildfowlers' Association of Great Britain and Ireland, she has contributed to the *New Wildfowler in the 1970's* as both photographer and author and also illustrated a number



of booklets and annual reports. She furnished exhibition prints for the Conservation Centre at Boarstall decoy and for WAGBI's mobile unit, while Redland Quarries, owners of the now famous WAGBI/Wildfowl Trust Experimental Gravel Pit Reserve at Sevenoaks, have a travelling exhibition of her pictures to illustrate how this reserve was made. In addition, she has produced several sets of 35 mm colour slides for Jeffery to use to illustrate his many lectures on such subjects as wildfowl conservation, creating a wetland habitat, the birds of Kent, and various expeditions abroad.

Pamela is a member of the Zoological Photographic Club and says that she has benefited much from the constructive criticism of the other members, although her work differs greatly from that of the conventional nest-photographer. This difference is well illustrated by the selection of her photographs on plates 67-74. All are taken away from the nest, many of them outside the breeding season; indeed, only the delightful family parties of Harlequins *Histrionicus histrionicus* (plate 71a) and Great Northern Divers *Gavia immer* (plate 71b) even suggest nesting. As already pointed out, the majority are of waterfowl and waders, but we also have a food-searching Little Egret *Egretta garzetta* with water streaming off its foot (plate 67a), a statuesque Short-eared Owl *Asio flammeus* (plate 74) and a displaying Capercaillie *Tetrao urogallus* (plate 67b). The last is worth particular emphasis because, although males of this species have been photographed before in various song and threat postures (e.g. *Brit. Birds*, 51: plates 29-32; 56: plates 1-4), illustrations of display and posturing are badly needed for a whole range of birds.

Half a dozen of these photographs show birds in flight. This is a medium which has been more widely explored in recent years, notably by Dr and Mrs David Urry, but Pamela's range from the highly evocative, such as the silhouetted Spoonbills *Platalea leucorodia* (plate 68a), the dashing Barrow's Goldeneyes *Bucephala islandica* (plate 69a) and, especially, the wintry Whooper Swans *Cygnus cygnus* (plate 68b) to the close-up of a Curlew *Numenius arquata* in motion (plate 73a) and the mechanics of 'jumping' by Black-tailed Godwits *Limosa limosa* (plate 73b) and of taking off by a Barnacle Goose *Branta leucopsis* and two Greylags *Anser anser* (plate 70). Apart from the delightful studies of a wading Curlew Sandpiper *Calidris ferruginea* (plate 72b) and resting Purple Sandpipers *C. maritima* (plate 72c), Pamela's efforts at stalking scarce or rare migrants are exemplified here by her Pectoral Sandpiper *C. melanotos* and Semipalmated Sandpiper *C. pusilla* in Co. Kerry (plate 72a), surely a unique combination for a European photograph. It may be a little disappointing to some that the selection does not include a single passerine, but we have only recently published her fine picture of a Nutcracker *Nucifraga caryocatactes* in Sussex during the 1968 invasion (*Brit. Birds*, 63: plate 63b).

ERIC HOSKING

## Notes

**Peregrine catching tern at sea** On 16th September 1969 I was on a southward crossing of the Straits of Gibraltar, at least five miles south of the Rock, when I noticed an immature Peregrine *Falco peregrinus* flying purposefully low over the sea towards the African mainland. When nearly level with the ship it began to chase a tern (either Common *Sterna hirundo* or Arctic *S. paradisaea*). After a short weaving pursuit, it snatched the tern in its talons and carried it off towards Gibraltar. Although its wing-beats were rather heavy, the Peregrine was still carrying its prey low over the water when I eventually lost sight of it. This incident is probably not remarkable in itself, but I can find no reference to Peregrines hunting and catching terns or any other prey so far from land.

GRAHAM BUNDY

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In 1964 and 1965 a series of notes and letters on Manx Shearwaters *Puffinus puffinus* as prey of Peregrines was published in *British Birds* (57: 466-467; 58: 149, 153-154, 297). The last of these described several attacks by a Peregrine on a number of Manx Shearwaters flying inshore low over the sea, but none was seen to be caught. **EDS**

**Oystercatcher brooding stones** For at least seven years up to 1968 a pair of Oystercatchers *Haematopus ostralegus* had laid their eggs on the same shingle bank of a burn in Strathnaver, Sutherland, and had always lined the nest with pink pebbles. On 2nd June 1969 an Oystercatcher was sitting on the same bank, its nest lined as in previous years but containing, instead of eggs, a large white stone and three smaller ones. Within five minutes of my departure from the site, the bird returned to brood the stones. I watched the pair changing 'incubation' duties on 12th June. By 25th June, however, the nest had been deserted.

On 22nd May 1970 what was presumably the same bird was sitting on the same bank, again brooding a large white pebble and three small ones. On 27th May I took an egg from a clutch of three further up the river, put it in the nest with the large stone and removed the three small ones. Within six minutes the bird returned to brood without any hesitation. The single egg hatched on 7th June, as did the two remaining in the other nest, and I saw all three young on 8th.

E. G. HOLT

We are very sorry to learn that Mr Holt died during the autumn before this note could be published. Derek Goodwin sees four possible explanations for the Oystercatchers' behaviour: (1) the female was

barren and the lack of her own eggs influenced her to incubate the next best thing; (2) the presence of stones supplied 'egg-substitute' stimuli and inhibited her from laying (hen pigeons can often be inhibited from laying by placing two eggs in their nest at the right moment); (3) in each year she *had* laid but the eggs had been predated and she 'mothered' stones from near-by instead; (4) the 'pair' was two males. In any similar case it would be interesting to explore these possibilities further. EDS

**Extension of the breeding range of the Oystercatcher to the Midlands** Oystercatchers *Haematopus ostralegus* have recently bred at three sites in the lowlands of the Midlands. In 1969 a pair attempted to breed in Nottinghamshire: a clutch of three eggs was found on 8th June and was still being incubated on 22nd, but four days later neither eggs nor young could be found; this pair had been present for three weeks prior to the discovery of the clutch. In 1970 no birds were seen. Another pair bred at a site in Staffordshire during 1970; one young bird was successfully reared. The third site was in Leicestershire: in 1970 a pair nested on a small island in an area of gravel workings, and three chicks were seen. (A pair also summered in Warwickshire in 1969; from their behaviour breeding was considered almost certain, but was not proved. In 1970 the site was flooded and the birds did not reappear.)

This extension of the Oystercatcher's range is remarkable when one considers that, as recently as 1967, J. L. F. Parslow gave it as coastal and inland for Scotland and parts of northern England, and coastal for Wales and the rest of England ('Changes in status among breeding birds in Britain and Ireland', part 2, *Brit. Birds*, 60: 106-107). The habitat requirements seem to be pasture-land with industrial wetland or disturbed ground. Now that young have been reared in at least two counties, there is a distinct possibility that this species will become established in the lowlands of England as did the Curlew *Numenius arquata* in the 1930's.

A. DOBBS

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**Carrion Crow stooping at Swallows** With reference to the note by D. M. Hanford (*Brit. Birds*, 62: 158) concerning a Carrion Crow *Corvus corone* stooping at Swallows *Hirundo rustica*, I thought that the following incident might be of interest. On 24th May 1969, at Nailsea Moor, Somerset, I saw a Carrion Crow stooping repeatedly at a Heron *Ardea cinerea*; eventually, having accompanied the Heron for about 400 metres, it flew back to the original area of moor. There a party of four Swallows was feeding over a rhine; at once the Carrion Crow stooped at one of them. This behaviour continued for about four minutes until the Swallows dispersed.

I assumed that the Heron had flown over the Carrion Crow's breeding territory and had been attacked in consequence; then, when the Heron had departed, the crow directed its aggression towards the Swallows which happened to be about at the time. A. P. RADFORD  
2 Wyck Beck Road, Brentry, Bristol BS10 7JE

It is quite normal for Carrion Crows to chase or mob Herons and other large birds, but stooping at hirundines is apparently rare and we have received no other notes on this subject since the publication of that by Mr Hanford. EDS

**Abnormally plumaged Green Woodpecker** On 9th June 1970, at Craig-y-Bwldan, near Dunvant, Swansea, I observed a Green Woodpecker *Picus viridis* which was totally devoid of any of the normal colours of this species. The forehead, crown, lores and moustachial stripes were dark sepia shading to black, as were the back, the tail and the entire upper surfaces of the wings, save for the primaries which bore spots of pale buff. The ear-coverts, chin, under-parts, rump and tail-coverts were pale buff. (I have made a coloured drawing from my field sketch to show the exact tones.) The bird was watched for about ten minutes at ranges varying from 20 to 100 feet; there was nothing at all unusual in its behaviour, whether on the ground, on a tree-trunk, or in flight. It called twice during this period with a typical 'yaffle' call.

DAVID G. P. CHATFIELD

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We showed this note and the author's coloured sketch to Bryan L. Sage, author of two papers on albinism and melanism in birds (*Brit. Birds*, 55: 201-225; 56: 409-416). He commented as follows: 'This is certainly a most interesting record and I would not think that the odd colour was a result of worn plumage. It seems that this bird was entirely lacking in the normal red and yellow carotenoid pigments and retained only brown melanins in the plumage. The green colour of the Green Woodpecker is, as I understand it, due to the phenomenon known as Tyndall scattering associated with a yellow carotenoid pigment. This carotenoid in this species was identified as picofulvin by C. F. W. Krukenberg (1882, *Vergleichend-physiologische Studien*, series 2, part 2, pp. 92-93).' EDS

**Sedge Warbler's song resembling Marsh Warbler's** At about 21.45 hours on 20th June 1970, on Hungerford Marsh, Berkshire, we heard a song which so nearly resembled that of a Marsh Warbler *Acrocephalus palustris* that we thought that this species was present. It imitated the following calls in fairly quick succession with few or none of the grating noises typical of this genus in between: alarm note of



Blackbird *Turdus merula*, flight notes of Chaffinch *Fringilla coelebs* and Linnet *Acanthis cannabina*, call note of Pied Wagtail *Motacilla alba*, and the 'ching ching' note of Great Tit *Parus major*. It was too dark to see the bird properly, but on the next day we found it in the same place, still singing as before, and immediately identified it as a Sedge Warbler *A. schoenobaenus*. Its behaviour and habitat differed in no way from those typical of this species.

It is, of course, well-known that the Sedge Warbler often mimics other species, but in our experience the song always includes a high proportion of grating and other non-imitative sounds between the imitations. The song in question was certainly in marked contrast to the typical songs of the numerous other Sedge Warblers which were present on the marsh.

R. G. FRANKUM and ROGER FRANKUM

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## Reviews

**Birds of Lebanon and the Jordan Area.** By S. Vere Benson. The International Council for Bird Preservation. Warne, London, 1970. 218 pages; 8 colour plates; 350 line-drawings; one map. 60s.

Miss Vere Benson is one of those ardent conservationists who rightly believe that personal action achieves far more than mere protests. Her international work in educating the young through the Bird Lovers' League was evidence of this. Her latest crusade, to save the birds of Lebanon, has been tackled in a thoroughly practical manner. Undaunted by the scarcity of reliable literature on the ornithology of the region, she has written and illustrated the first guide and checklist to all the species recorded or likely to occur there. A partial list of additional species occurring in Jordan is given in an illustrated appendix. Her initiative deserves commendation, and in his foreword Professor S. Dillon Ripley draws attention to the value of the book to the conservation movement. An Arabic edition is in preparation as the first essential step in local education. The English edition will be welcomed by the growing number of ornithologists who visit Lebanon, Jordan and Israel; those who read Miss Benson's vivid description of the spectacular annual passage of raptors along the western slopes of the Lebanon Range will now know exactly when and where to go. The text, which was checked by several well-known authorities on the birds of the Middle East, includes useful notes on identification, voice and habitat. The illustrations, though often handicapped by their small scale, are adequate if used in conjunction with the descriptive text. Much still remains to be learned about the distribution and breeding status of birds in Lebanon and this book will certainly stimulate further studies.

GUY MOUNTFORT

**The Birds of Devon.** By Robert Moore. David & Charles, Newton Abbot, 1969. 293 pages, including 16 black-and-white plates; one map. 70s.

**Birds of the Cornish Coast.** By R. D. Penhallurick. Bradford Barton, Truro, 1969. 200 pages; 8 black-and-white plates; 60 line-drawings; 12 maps. 70s.

These two books, the first full ornithological histories of Cornwall and Devon since 1880 and 1906 respectively, reflect the growing interest in the birds of this south-west corner of England. More and more bird-watchers now make a regular autumn pilgrimage to such localities as Slapton, the Hayle Estuary, Marazion Marsh, Porthgwarra and the Tresco pools, and every rare vagrant that turns up at these places is now viewed through more pairs of binoculars than ever before; in fact, bird-watchers often outnumber rare birds. Both books contain much evidence of the great increase that has occurred in the numbers of American vagrants and other rarities recorded in the two counties in recent years, and demonstrate the importance of their offshore islands, Lundy and the Isles of Scilly, in this respect.

South-west England is also of great interest to students of bird distribution because it is here, at different points along the peninsula, that the ranges of so many of our breeding birds peter out or become highly localised. Robert Moore's book, in particular, gives many examples of changes in distribution and abundance: on balance in Devon, during the present century, more species seem to have increased or been gained than to have decreased or been lost. One of the region's main ornithological attractions—its seabird colonies—has also come in for increased attention in recent years. Much of this interest stems from surveys initiated by the Nature Conservancy following the *Torrey Canyon* incident in March 1967: Roger Penhallurick's book contains valuable maps showing the location and size of these colonies in Cornwall and the Isles of Scilly.

The two books, identically priced and both produced by West Country publishers, differ considerably in style, format and scope. That on Cornwall is meticulously detailed, reminding one of some of the pre-war county avifaunas; the large page size and the many line-drawings and maps make it an attractive book to look at. Apart from one short introductory chapter, it consists entirely of a systematic list of 171 species belonging to 25 families of what can broadly be termed water-birds; the remaining species are to be dealt with in a later volume. The book's title is something of a misnomer, for species such as the Corncrake are included, but such typical coastal birds as the Rock Pipit and Peregrine are not. By contrast, the book on Devon, while being well printed and produced, has a rather uniform, almost clinical appearance. The species accounts are all of approximately the same length, those of rarities, even when recorded only once in the

county (for example, the Bimaculated Lark), sometimes being of similar length to those of important breeding species (such as the Woodlark). This book contains rather more introductory matter, however, notably brief descriptions of the main habitats found in the county, and it does of course cover all 336 species recorded in Devon.

J. L. F. PARSLow

**Patterns of Reproductive Behaviour.** By Desmond Morris. Jonathan Cape, London, 1970. 528 pages; 46 black-and-white plates; numerous figures and diagrams. 84s.

To most people, Desmond Morris is known largely as a television personality and as the author of two popular and highly successful (if controversial) books on human behaviour—*The Naked Ape* (1967) and *The Human Zoo* (1969). To a much smaller group, consisting largely of ethologists, his fame rests more on a series of papers on animal behaviour written and published in the 1950's when he was working at Oxford under Professor Niko Tinbergen, to whom the present volume is dedicated. It is these papers, and a few others dating up to 1966, that are collected here. As most of them originally appeared in specialist journals (mainly in *Behaviour*), it is very convenient for the general reader to have them re-issued together in a single volume, in some cases with brief comment and emendation from the author.

The papers are concerned with, or draw largely upon, the behaviour of animals (excluding Man) as studied in captivity with both the advantages and limitations of 'bringing the field to the laboratory'. As well as an article discussing the courtship of pheasants (four pages), there are two major papers on single species of birds—the Zebra Finch (46 pages) and the Bronze Mannikin (41 pages)—while another treats the ethology of grassfinches and mannikins comparatively (54 pages). Three review papers also draw much of their material from birds. One deals with the causation and function of courtship ceremonies (24 pages), another with feather postures in birds and the problem of the origin of social signals (33 pages), and the third with 'typical intensity' and its relation to ritualisation (ten pages). Most of the rest of the book is taken up with contributions on fish (Ten-spined Stickleback and River Bullhead), including the *Behaviour Supplement* version of the author's doctorate thesis (153 pages), but there is also an account of food-hoarding in a mammal (the Green Acouchi).

All this material is well and lucidly written and the book may be recommended to ornithologists with an interest in animal behaviour studied in the fashion of ethology some two decades ago, in the phase before its present involvement with psychology (on the one hand) and ecology (on the other). Among the contributions are some classics of their kind, especially the reviews on courtship motivation and on feather postures.

K. E. L. SIMMONS

**An Eye for a Bird.** By Eric Hosking with Frank W. Lane. Hutchinson, London, 1970. xviii + 302 pages; 155 photographs, 16 in colour; 4 text-figures. 65s.

For Eric Hosking, it really did all start with a Kodak Box Brownie, in 1916 or thereabouts. But perhaps the more significant years were 1920, when using the more sophisticated apparatus he had by then acquired for thirty shillings, he first exposed a plate at the nest of a Song Thrush (having, like many lesser mortals, forgotten to focus the camera); and 1930, when he launched into his 'first real field-work' at Staverton Park in Suffolk (having, again like many others, become 'unemployed'—a considerable misuse of language in this instance and one that could scarcely have led to happier consequences).

The story of how, from such small beginnings, the grand mastery of bird photography was achieved is told in the first half dozen chapters. The remaining sixteen fall into three groups. Those headed Hides, Flash, Experiments, and Photography deal with the tools of the craft and the principles and techniques involved, in the definition and development of which Eric Hosking's contribution has been second to none. The exercise of the craft is the subject of a second group of chapters comprising nearly half the book and headed Holland, Finland and Norway; Hickling; Hilbre; Minsmere; Spain; Bulgaria; Hungary; Jordan; Pakistan; and Africa: how much of what these names evoke in the mind of ornithologists is owed to Hosking's lenses! Finally, the chapters headed Bone-breaker (on the Lammergeier) and, simply, Owls highlight two Hosking predilections.

The 155 photographs, though a reasonably generous ration, represent only a thousandth of those available, a figure derived from the astonishing fact that no fewer than an average of 3,750 photographs per year in Hosking's 40 years of photography have been worthy of his retention. An analysis of those chosen for this book breaks down the subject-matter as follows: non-passerine birds 42%, of which a third or so are birds of prey and owls; passerines 11%; mammals (excluding Man) 5%; Man 26%; scenery, habitat and miscellaneous 10%; hides (some of a hair-raising variety) 6%. On the basis that the book is clearly, and on the whole successfully, aimed at a very wide audience, from the millions of television nature programme viewers to the most dedicated ornithologist, the latter will probably feel that the proportion of the illustrations represented by the last three groups (over 40%) is higher than is strictly justified by their often considerable historical interest and the need for variety. Nevertheless, there are still plenty of the master's best bird photographs to admire and cherish, some of them already familiar (like the famous Barn Owl).

Towards the end of the book the claim is made that every bird photograph has its 'jizz' which makes it recognisable to the expert as the work of a particular photographer. Whether this always holds



good, any more than in the case of a bird's identity, seems doubtful, but perhaps the hallmark of Hosking's work is simplicity, fidelity and integrity, based on a conviction that a camera operated with the highest possible standards of skill, and with sympathy for the subject, is capable of catching the true beauty and balance of nature, sharing it with all mankind and enshrining it for ever. Because these same principles of simple factual directness have been applied to the written word, with a refreshing lack of the present-day foibles of cynicism, humourlessness, introspection and self-pity, not only the illustrations but also the text pages have something to suit most appetites. Few will be able to put the book down without wishing for a second helping of this or that item—but that is surely the right way to end any feast.

HUGH F. I. ELLIOTT

#### ALSO RECEIVED

*Arthur Singer's Book of Birds*. Paul Hamlyn, London, 1970. 21s.

*Birds of Paradise and Bower Birds*. By E. Thomas Gilliard. Weidenfeld and Nicolson, London, 1969. £6 6s.

*Birds of the Countryside*. By John Taunton. Lutterworth Press, 1970. 5s.

*Birds of the Pacific Northwest* (1940). By Ira N. Gabrielson and Stanley G. Jewett. Dover Publications, New York, and Constable, London, 1970. 47s. 6d.

*Black Eggs*. By Nicolette Devas. Collins, London, 1970. 25s.

*Darwin and the Beagle*. By Alan Moorehead. Hamish Hamilton, London, 1969. 75s.

*Handbook of the Birds of India and Pakistan*. By Salim Ali and S. Dillon Ripley. vol 3. Oxford University Press, Bombay, 1970. £6.

*The Atlantic Islands*. By Kenneth Williamson. Routledge and Kegan Paul, London, 1970. 65s.

*Wildlife in Cornwall*. By Rennie Bere. Bradford Barton, Truro, 1970. 40s.

## News and comment *Robert Hudson*

**B.T.O. Annual Conference** The Annual Conference of the British Trust for Ornithology was held at the Hayes Conference Centre, Swanwick, Derbyshire, from 4th to 6th December 1970, and the wide range of subjects discussed demonstrated the many-sided outlook of the Trust. The third Witherby Memorial Lecture was given by H. N. Southern, being a synthesis of his well-known predator-prey relationship population study based on Tawny Owls. One of the B.T.O.'s longest-standing enquiries is its annual index-census of Herons, and the uniqueness of these figures, unbroken for over 40 years, was stressed by Ian Prestt in relation to a Nature Conservancy study of this species. For the third successive year, the Trust invited a speaker from the Continent to review ornithological progress in his country; and the masterly survey of Polish ornithology by Dr A. Dyrz of Wrocław was greeted with acclaim. Trevor Lloyd-Evans, who joined the B.T.O. staff on an R.A.F. Fellowship to study bird movements in connection with the bird-strike hazard, spoke on gull flight-lines, inland roosts and feeding sites in his Yorkshire study area. Other talks included reports by Dr J. T. R. Sharrock on the B.T.O. Ornithological Atlas project; by Dr M. Hooper (Nature Conservancy) on the value to wildlife of hedges in relation to their age; and by M. A. Ogilvie (Wild-fowl Trust) on the threat to Pink-footed Geese posed by the recent proposal for

hydro-electric projects affecting their central Iceland breeding grounds. There is no doubt that the B.T.O. is in a healthy intellectual condition; it is a great pity that it has been unable to increase its membership much over the 4,000 level to establish a sounder financial climate. It is a body which deserves support.

**Can the Great Bustard be reintroduced?** The Great Bustard formerly bred in England, but died out about 1840 as a direct result of human persecution and changes in farming practice; in 1910 an attempt to reintroduce the species to the East Anglian Brecks failed. Now another, more careful, attempt is to be made on Salisbury Plain, Wiltshire, where the species became extinct about 1806; a newly-formed 'Great Bustard Trust Fund' has been created for this end. It is proposed to lease ten acres of the Plain, and to enclose this area as a vast fox-proof pen. Within the enclosure suitable crops will be grown to provide natural food; it is hoped that the bustards will breed and that full-winged progeny will establish themselves in the vicinity. The Trust has obtained six healthy Great Bustards (two males, four females) from Portugal; these are at present being cared for in a private Buckinghamshire zoo. The planned enclosure will be very expensive, however, and donations are solicited (The Great Bustard Trust Fund, Barclays Bank Ltd, High Street, Salisbury).

Only time will tell whether this venture will succeed. The 1910 attempt failed because the birds dispersed too quickly when freed, and this could also happen on Salisbury Plain. Yet such attempts at reintroduction are justifiable in the few cases of former British breeding birds whose present distributions are such that they could not recolonise these islands naturally; probably only the Great Bustard and White-tailed Eagle fall into this category. One hopes that the present plan will be more successful than the ill-starred attempt in 1968 to reintroduce the White-tailed Eagle via Fair Isle.

**New Seabird Group publication** The Seabird Group came into being in 1966 to encourage and co-ordinate co-operative research into seabirds. Hitherto, this organisation has disseminated news and summaries in a series of duplicated bulletins; but it is a sign of its growing maturity that the bulletin has now been replaced by a printed report. *Seabird Report 1969* contains all too brief reports of the Group's many activities, ranging from 'Operation Seafarer' and sea-watching to tern behaviour and auk mortality. Though the Group is at present primarily concerned with British and Irish field-work, the *Seabird Report 1969* includes articles on breeding seabirds in the Faeroes and sea-watching in Morocco. This publication, a credit to all concerned, is available (price ten shillings) from the Seabird Group, c/o British Ornithologists' Union, Bird Room, British Museum (Natural History), Cromwell Road, London SW7. If, as seems probable, the Seabird Group continues to grow in stature, we suspect that in time their publication will become, in effect, if not in name, a 'Journal of Marine Ornithology'.

**Bird Room move from London to Tring** We have been asked by Dr D. W. Snow, head of the Bird Room, British Museum (Natural History), to give early notice that the bird collections will be moved to Tring Museum during the second half of 1971. Packing will begin in April, and from May to the end of the year the collections will not be available to visitors. It will also be necessary to restrict access to the collections during the period from January to April 1972. The ornithological collections are to be rehoused in a specially designed new building adjacent to the Museum's out-station at Tring. With effect from 1st October 1971, the address will be: Sub-department of Ornithology, British Museum (Natural History), Tring, Hertfordshire.

*Opinions expressed in this feature are not necessarily those of the editors of British Birds*

## Recent reports *P. F. Bonham*

### These are largely unchecked reports, not authenticated records

This report summarises the records for September 1970 and, unless otherwise stated, all dates refer to that month. While an anticyclone persisted over the Azores until 17th, a series of depressions moved eastwards over north-west Europe. The most vigorous were low 'C' which reached Ireland on 7th and low 'D' only two days behind; the latter was unusually deep and caused gales of up to 50 m.p.h. Numbers of exhausted seabirds were blown far inland and many must have died. Apart from these brief cyclonic gales, winds were between south and north-west continually from 1st to 20th. On 18th a depression approached the Azores and a 'high' formed off south-west Ireland; these and other new developments culminated in an anticyclone over the North Sea on 21st, bringing south-east or southerly winds until 28th when an Atlantic depression finally moved in and westerlies returned. The month was outstanding for influxes of American waders, especially during 4th-9th, 15th-21st and (strangely, in view of the weather) 25th-28th.

#### SEABIRDS AND HERONS

The largest seabird movements occurred from 1st to 5th and from 9th to 13th; during these periods at least 73 **Balearic Shearwaters** *Puffinus puffinus mauretanicus* passed Portland (Dorset), the majority on 4th (17) and 9th (45). Several other coastal reports included five off Bardsey (Caernarvonshire) on 1st and six on 10th, 22 **Manx Shearwaters** *P. puffinus* off Sand Point (Somerset) on 9th, 16 off Dungeness (Kent) on 12th and 20 off Gibraltar Point (Lincolnshire) on 16th. Exhausted birds of this species were found inland in Buckingham, Northampton and Leicestershire (two each), Hereford, Radnor and Northumberland. At Cape Clear Island (Co. Cork) 14 **Great Shearwaters** *P. gravis* and two **Cory's Shearwaters** *Calonectris diomedea* were seen on 4th and at least 28 **Great Shearwaters** passed by on 13th; two of the latter were also reported off west Cornwall on 22nd. A few undetermined Great/Cory's were recorded at Cape Clear Island, and single **Cory's Shearwaters** also occurred off Co. Down and in Orkney. At least 20 **Sooty Shearwaters** *P. griseus* passed Bardsey on 1st and a **Leach's Petrel** *Oceanodroma leucorhoa* was killed at the lighthouse there on 6th. Among the more extraordinary reports of storm-driven **Gannets** *Sula bassana* were four fishing in Farmoor Reservoir (Berkshire) during the evening of 10th and no fewer than eleven at Stanford Reservoir (Leicestershire/Northamptonshire) next day; on 12th only two remained alive there and one corpse was picked up, and a second corpse was found on 20th.

After the great influxes of southern herons during the spring, autumn records were few indeed. The **Little Egret** *Egretta garzetta* which summered in Poole Harbour (Dorset) remained there on Brownsea Island until 26th. A **Purple Heron** *Ardea purpurea* appeared in Christchurch Harbour (Hampshire) on 13th. An adult **Night Heron** *Nycticorax nycticorax* was seen at Stocker's Lake, Rickmansworth (Hertfordshire) on 6th, and an immature **Little Bittern** *Ixobrychus minutus* was watched at extremely close range at Cley (Norfolk) on various dates from 27th until at least 12th October. Less easily accessible was a **Spoonbill** *Platalea leucorodia* on Scolt Head Island (also Norfolk) from 5th to 22nd—probably the bird at Brancaster in August (*Brit. Birds*, 63: 397)—and we have also heard rumours of a **White Stork** *Ciconia ciconia* in east Norfolk early in the month. Additional spring records of a **Purple Heron** at Lodmoor (Dorset) from 11th to 14th May, **Little Egrets** at Garlieston (Wigtownshire) from 19th April to 6th May and at Fingringhoe (Essex) from 29th to 31st May, and four **Little Bitterns**, male and female at Fingringhoe on 27th April, female on Tresco (Isles of Scilly) on 8th June and male at Arncroach (Fife) on 10th June, do not affect the general pattern.



## WILDFOWL AND BIRDS OF PREY

Apart from a **Long-tailed Duck** *Clangula hyemalis* at Hauxley (Northumberland) on 13th, there were no notable duck reports. At Loch Leven (Kinross) the first 38 **Pink-footed Geese** *Anser fabalis brachyrhynchus* of the autumn arrived on 12th, and a few hundred passed through during the following ten days; by 25th 1,500 remained in the area. Other reports came from Southport (Lancashire) (400 flying over on 19th), Leighton Moss (Lancashire), the Solway, Ribble and Dyfi estuaries, north Yorkshire, Lincolnshire and Norfolk. Other geese were much scarcer: 22 **Grey Lag Geese** *A. anser* heading south at Felton (Northumberland) on 3rd and several small parties towards the end of the month; eleven **White-fronted Geese** *A. albifrons* at Slimbridge (Gloucestershire) on 29th; a total of 42 **Brent Geese** *Branta bernicla* at three places in East Anglia on 27th, seven in Teesmouth (Co. Durham/Yorkshire) on 5th and 6th and 50 off Tynemouth (Northumberland) in September. Four **Whooper Swans** *Cygnus cygnus* arrived on Fetlar (Shetland) on 20th.

A series of **Buzzards** *Buteo buteo* in eastern England (Sussex, Kent, Cambridgeshire, Leicestershire, Lincolnshire and east Yorkshire), mainly during the first week, were possibly Scandinavian birds on passage, especially in view of the appearance of **Rough-legged Buzzards** *B. lagopus* at Holt and Gooderstone (both Norfolk) about 5th and 20th respectively. A second unidentified buzzard near Holt at the same time was probably another Rough-legged. A **Black Kite** *Milvus migrans* appeared on North Ronaldsay (Orkney) on 28th, and a **Red Kite** *M. milvus* at Beachy Head (Sussex) next day matched the Black Kite there on 12th April (*Brit. Birds*, 63: 144). Single **Honey Buzzards** *Pernis apivorus* were seen at Hassop (Derbyshire) on 12th and on Tresco on 28th, and **Ospreys** *Pandion haliaetus* appeared on Fair Isle (Shetland), at Beecraigs Reservoir, Linlithgow (West Lothian), at Arne (Dorset) and at two places in Kent.

## AMERICAN WADERS AND GULLS

At least nine species of Nearctic waders were reported in September. The most abundant were **Pectoral Sandpipers** *Calidris melanotos* (at least 50 altogether, at 30 localities) and **Buff-breasted Sandpipers** *Tryngites subruficollis* (20 at ten localities). Half the Pectoral Sandpipers arrived during the stormy weather of 1st to 10th; as well as many ones and twos these included up to three at Stithians Reservoir (Cornwall) and five on the Co. Durham side of Teesmouth during this period. The main arrival of Buff-breasted Sandpipers was not until the middle third of the month, however; only five individuals were reported before 11th. These were singles on St Mary's (Isles of Scilly) and at Ballycotton (Co. Cork) on 2nd, one at Sidlesham (Sussex) on 5th and two at St John's Point, Killough (Co. Down) on 6th. The period 11th-21st produced about twelve more single Pectoral Sandpipers, a few records of two together, and three at Ballycotton, and as many as seven Buff-breasted Sandpipers on St Mary's from 19th with singles at Ballycotton, Tresco, St Agnes (Isles of Scilly), Stithians Reservoir, St Just (Cornwall) and Aylburton Warth (Gloucestershire). There were virtually no arrivals of either species on 22nd and 23rd, but another influx from 24th produced about ten more Pectorals (including four on Tresco) and five Buff-breasted, four of which were at Predannack airfield, Lizard (Cornwall) and one at Frodsham (Cheshire). Incidentally, both species occurred on Ile d'Ouessant, Brittany, during September, and two Pectoral Sandpipers were identified at Illmitz, Lake Neusiedl, on 10th, probably the first Austrian record.

Covering the rarer American waders in systematic order, **Lesser Yellowlegs** *Tringa flavipes* were seen in the Medway estuary (Kent) on 4th and 9th, at Keyhaven (Hampshire) on 25th and at Ballycotton during 23rd-30th, a **dowitcher** *Limnodromus* sp was seen at Harty (Kent) on 27th and a **Long-billed Dowitcher** *L. scolopaceus* remained at Frodsham from 19th well into October. Two **White-rumped Sandpipers** *Calidris fuscicollis* came to our notice: at Cargreen (Cornwall) on 1st and



Pennington Marshes (Hampshire) from 4th to 6th. **Baird's Sandpipers** *C. bairdii* occurred at Ballycotton from 15th to 26th, in the Cley area from 18th to 20th and—probably the same bird—at Brancaster on 23rd and 24th, at St Mary's (Northumberland) from 21st to 23rd, at Lady's Island Lake (Co. Wexford) on 26th and 27th (two) and at Pitsford Reservoir (Northamptonshire) on 29th. A **Semipalmated Sandpiper** *C. pusilla* was identified on Tresco on 27th, and a **Stilt Sandpiper** *Micropalama himantopus* in the Ythan estuary (Aberdeenshire) on 19th. Lastly, **Wilson's Phalaropes** *Phalaropus tricolor* were reported at Sandbach (Cheshire) from 6th to 12th, Pulias Pond (Guernsey) from 9th to 17th, Ballycotton from 13th to 25th, the Ribble marshes (Lancashire) on 19th or 20th, Forfar Loch (Angus) on 21st, Walland Marsh reservoir (Kent) from 21st to 25th, Lady's Island Lake on 27th and the Hayle estuary (Cornwall) at the end of September. (There were also undated September reports of a **Lesser Yellowlegs** on the Ribble marshes, a **dowitcher** at Keyhaven, a **White-rumped Sandpiper** in Poole Harbour and a **Baird's** at Frodsham.)

The month was also outstanding for **Sabine's Gulls** *Larus sabini*, and it would be pointless to list all 25-30 individuals here. The main arrival extended from about 8th to 13th (during and after the westerly gales), but smaller influxes were evident during the first and last weeks. The great majority occurred in south-west England and on the south coasts of England and Ireland, but there were at least three in the Irish Sea area and two on the east coast (Lincolnshire and Co. Durham). An immature **Bonaparte's Gull** *L. philadelphia* was reported at Cley on 26th.

#### PALEARCTIC WADERS

**Kentish Plovers** *Charadrius alexandrinus* were present at Havergate (Suffolk) on 8th or 9th and at Blithfield Reservoir (Staffordshire) from 12th to 16th; another at Sandwich Bay (Kent) on 6th was probably the same as the one there in August (*Brit. Birds*, 63: 398). An influx of **Jack Snipe** *Lymnocyrtus minimus* from 23rd onwards coincided with the anticyclonic conditions over the North Sea; only five had been reported before that date. **Wood Sandpipers** *Tringa glareola*, after a fairly good passage in August, were rather scarce: five at Minsmere (Suffolk) until 4th comprised the largest party reported, and very few were seen after 13th. Up to 93 **Spotted Redshanks** *T. erythropus* and 300 **Black-tailed Godwits** *Limosa limosa* were present at Arne during September. **Little Stints** *Calidris minuta* and **Curlew Sandpipers** *C. ferruginea* were concentrated mainly during 1st-8th (probably the aftermath of the heavy passage of 22nd-31st August) and during 23rd-30th (*cf.* Jack Snipe). The largest gatherings were at Ballycotton—60 Curlew Sandpipers on 16th and 22 Little Stints on 18th—occurring, strangely, during a period of relative scarcity nearly everywhere else. Curlew Sandpipers are normally rare in Shetland, so up to four at Virkie, two on Fetlar, one on Whalsay and one on Fair Isle deserve mention. As well as two remaining from August, **Temminck's Stints** *C. temminckii* occurred at Rodbourne sewage-farm, Swindon (Wiltshire) on 1st, at Whittle Dene (Northumberland) on 2nd and 4th and at Cowpen Marsh (Co. Durham) on 26th; and **Broad-billed Sandpipers** *Limicola falcinellus* were reported from Minsmere on 13th and from St Just on 25th.

#### SKUAS, GULLS AND TERNS

Skua passage was fairly light during September. The most notable records concerned about 90 **Arctic Skuas** *Stercorarius parasiticus* at Anderby (Lincolnshire) on 6th, 50 Arctics and one **Pomarine Skua** *S. pomarinus* at Langney Point (Sussex) on 14th, 103 **Arctic Skuas** at Donna Nook (Lincolnshire) on 21st, and five **Pomarine**s at Cley and 13 at Hartlepool (Co. Durham) on 27th. Thirty or 40 other Pomarine Skuas were reported, and **Long-tailed Skuas** *S. longicaudus* were seen at Hartlepool on 1st, from the steamer from Aberdeen to Shetland on 3rd, at Donna Nook on 8th and at Hilbre (Cheshire) on 26th (two). Apart from the Sabine's

Gulls and the Bonaparte's Gull (see above), there were no reports of rare gulls in September; a scattering of **Glaucous Gulls** *Larus hyperboreus* and **Mediterranean Gulls** *L. melanocephalus* on the east coast continued the August pattern, while **Little Gulls** *L. minutus* were reduced in numbers to some 100 in 30 localities.

Another six or seven **White-winged Black Terns** *C. leucopterus* appeared in September: an immature at Blithfield Reservoir and a second for the autumn at Chew Valley Lake (Somerset); two at Hilfield Reservoir (Hertfordshire); and one at Belvide Reservoir (Staffordshire) on 8th followed by two there on 28th. An adult **Whiskered Tern** *C. hybrida* was reported at Holywell Ponds (Northumberland) on 1st, a **Caspian Tern** *Hydroprogne tschegrava* at Sandwich Bay on 3rd and **Gull-billed Terns** *Gelochelidon nilotica* there on 7th and 18th, at Portland on 5th, at Pennington Marshes on 16th and at Faversham Creek (Kent) on 24th.

#### SCANDINAVIAN MIGRANTS AND EASTERN VAGRANTS

There were no falls of Scandinavian migrants comparable with the influx of 22nd-23rd August (*Brit. Birds*, 63: 399), but there was evidence of small arrivals on 8th, about 12th, and from 20th to 27th with the south-easterly winds. Only about 30 **Wrynecks** *Jynx torquilla* were reported, all but eight during the first half of the month; many were well inland suggesting that they had arrived with the August influx and subsequently wandered. About 20 **Bluthroats** *Luscinia svecica*, a dozen **Icterine Warblers** *Hippolais icterina*, 25 **Barred Warblers** *Sylvia nisoria* and a few **Red-backed Shrikes** *Lanius collurio* were more evenly distributed through September, as usual mainly on the east coast. The first detectable arrivals of **Redwings** *Turdus iliacus* occurred on 22nd, and of **Fieldfares** *T. pilaris* on 26th, and parties of 20 or 30 were subsequently reported from Shetland and Northumberland. (Incidentally six Fieldfares at Lincoln on 16th August should have been included in the last summary.) **Red-breasted Flycatchers** *Ficedula parva* were unusually scarce, and apart from one on St Mary's in mid-month all occurred between 22nd and 30th; some 17 **Great Grey Shrikes** *Lanius excubitor* were also concentrated in this period except for one at Blithfield Reservoir from 6th to 16th. **Arctic Warblers** *Phylloscopus borealis* were seen at Portland on 5th and on the Isle of May (Fife) on 7th, and four appeared on Fair Isle between 13th and 20th; later in the month nine **Yellow-browed Warblers** *P. inornatus* were recorded in Shetland between 24th and 28th, and two others occurred at Sandwich Bay on 23rd and at Holme (Norfolk) on 28th.

**Scarlet Rosefinches** *Carpodacus erythrinus* were confined to Shetland—singles on Fetlar on 9th and 24th, two on the Out Skerries on 20th and 27th and about eight on Fair Isle, though as pointed out in the recent ten-year analysis of this species (*Brit. Birds*, 63: 323-324) those in western Britain are more likely to have come from the south than from Fenno-Scandia. Ten **Twites** *Acanthis flavirostris* were seen at Chetney (Kent) on 6th, and there were small arrivals of this species and of **Bramblings** *Fringilla montifringilla* on the east coast during the last week; **Lapland Buntings** *Calcarius lapponicus* (most of which reach us from Greenland rather than Scandinavia) were more widespread, with up to six on Lundy, one on the Calf of Man and about 25 others scattered from Hampshire to Shetland. Single **Little Buntings** *Emberiza pusilla* occurred on Fair Isle on 13th and on Fetlar on 27th. A probable **Nutcracker** *Nucifraga caryocatactes* was reported flying south over Kingsdown, Deal (Kent) on 4th, only 13 days after the Beachy Head bird (*Brit. Birds*, 63: 400).

**Snow Buntings** *Plectrophenax nivalis* were exceptionally numerous in Shetland, and details of the build-up are available for the flocks on Fetlar and Fair Isle: on the former island, from one on 8th, there were 50 by 12th, 200 by 16th and 1,000 on 18th, and on Fair Isle numbers increased from three on 5th to 15 on 9th, 200 on 10th, 600 on 11th and a peak of no fewer than 2,000 on 18th, at least 95% of which were males, mainly adults. Elsewhere on the east coast only the usual small parties

were seen and only from 19th onwards; the Shetland flocks, therefore, would seem to have had a totally different origin from these others.

Invasions of **Richard's Pipits** *Anthus novaeseelandiae* are now an annual feature of the autumn, and despite the lack of prolonged easterlies 1970 was no exception. Two on Bardsey on 7th was the sole report before the change in the weather; from 20th onwards there were more and the big influx came on 26th and 27th (though the fact that this was a weekend was no doubt partly responsible). Altogether about 55 were reported, of which some 30 were first seen on 26th or 27th. Seven at Overy Staithe (Norfolk) on 26th was the largest party, and in all there were at least 15 on the north Norfolk coast during that weekend. A **Short-toed Lark** *Calandrella cinerea* on St Agnes on 24th and two on the Out Skerries on 29th seem likely to have originated from the east, and the same applies to a **Woodlark** *Lullula arborea* seen on the beach at Salthouse (Norfolk) on 27th; a few **Shore Larks** *Eremophila alpestris* also arrived on the Norfolk coast at the end of September. Lastly, a **Citrine Wagtail** *Motacilla citreola* was seen on Fair Isle on 16th.

#### SOUTHERN AND SOUTH-EASTERN SPECIES

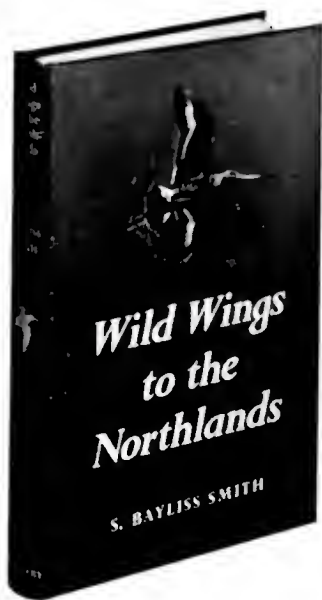
The few southern vagrants reported during the month included **Alpine Swifts** *Apus melba* at Fan Bay, Dover (Kent) on 13th and on Tresco on 21st, a female **Golden Oriole** *Oriolus oriolus* at Aywick, Yell (Shetland) from 14th to 17th, and a **Bee-eater** *Merops apiaster* at Bordesley Abbey, Redditch (Worcestershire) on 24th and 25th. A **Roller** *Coracias garrulus* at Market Rasen (Lincolnshire) on 10th August was reported too late for inclusion in the last issue. **Hoopoes** *Upupa epops* appeared at Tramore (Co. Waterford), Portland, Rottingdean (Sussex) (two) and on Guernsey and Fetlar. The first **Desert Wheatear** *Oenanthe deserti* since 1966, a male at Donna Nook on 23rd, was quite a surprise, as was a **Rose-coloured Starling** *Sturnus roseus* among a flock of **Starlings** *S. vulgaris* at Fort George, Guernsey, on 11th. Four **Aquatic Warblers** *Acrocephalus paludicola* in southern England, and about eight **Melodious Warblers** *Hippolais polyglotta*, three in Wales and the rest in the south-west, made a poor total, but these species were probably under-reported to some extent. A **Bonelli's Warbler** *Phylloscopus bonelli* stayed on Cape Clear Island for at least four weeks, from 13th September to 11th October, and another Bonelli's was found at Dungeness on 20th.

About 13 more **Tawny Pipits** *Anthus campestris* (including one as far north as Whalsay on 10th and 11th) brought the year's total to well over 20 and it is clear that, when all the records are in, 1970 will prove to be another very good year for this species. An **Ashy-headed Wagtail** *Motacilla flava cinereocapilla* (the central Mediterranean race) was a rare visitor to Lundy during late September. Finally, **Lesser Grey Shrikes** *Lanius minor* and **Woodchat Shrikes** *L. senator* were represented by a single report of the former, on St Mary's on 28th, and three of the latter, on Bryher (Isles of Scilly), Lundy and Holy Island (Northumberland), and as far as we know there was just one **Serin** *Serinus serinus*, at Walberswick (Suffolk) on 19th.

#### ADDITIONAL JULY AND AUGUST REPORTS

Certain other reports arrived too late for the July and August summaries. The few July ones were all from the Teesmouth area: three early **Curlew Sandpipers** on 20th, **Glaucous Gulls** on 8th and 18th and two very out-of-season **Fieldfares** on Urra Moor on 11th. August reports from this area included single **Pectoral Sandpipers** on 26th and 31st, a **Sabine's Gull** on 17th, a **Barred Warbler** from 20th to 22nd and a **Red-breasted Flycatcher** on 23rd. A **Gyr Falcon** *Falco rusticolus* was reported at Tintagel (Cornwall) on 20th, a **White-winged Black Tern** at Queen Mary Reservoir (Middlesex) on 25th, **Aquatic Warblers** at Christchurch Harbour on 9th and 20th, a **Greenish Warbler** *Phylloscopus trochiloides* at Gibraltar Point on 26th and **Tawny Pipits** at Beachy Head on 23rd and 28th.

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## Binding 1969 and 1970 volumes: preliminary announcement

We regret the delay over the indexes for volume 62 (1969) of *British Birds*, but these will now be published very shortly and we expect to produce those for volume 63 (1970) in the spring of 1971.

Arrangements have been made for these and other volumes for binding to be sent in future not to the publishers but direct to the binders, P. G. Chapman & Co Ltd, Kent House Lane, Beckenham, Kent BR3 1LD, to whom payment should also be made. The charge per volume is 28s (£1.40) which includes the cost of packing and return postage. Full instructions will be sent with both the comprehensive indexes and the short indexes for these volumes.

Please note, however, that no binding for 1969 or 1970 should be sent until the publication of the indexes concerned.

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### Small Advertisements

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This indispensable bibliography compiled by the staff of the Zoological Society of London, is an annual list of ornithological literature in all parts of the world. Full references are given with authors and titles and they are indexed under species, subjects and countries. The latest issue covers 4,951 articles and books published mainly in 1967 and is obtainable at a cost of 60s (postage extra), from

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# Comprehensive index

Compiled by Mrs N. D. Blamire

Entries are in a single list with references to:

(1) every significant mention of each species, not only in titles, but also within the text of papers, notes and letters, including all those appearing in such lists as the 'Recoveries in Great Britain and Ireland of birds ringed abroad' and the 'Report on rare birds in Great Britain in 1969', but excluding those in 'Requests for information', 'News and comment' and 'Recent reports';

(2) scientific nomenclature under generic names only and almost entirely following Dr C. Vaurie's *The Birds of the Palearctic Fauna* (1959-65);

(3) authors of all papers, notes, reviews and letters, and photographers; papers are referred to by their titles, other contributions as 'note on', 'review of', etc.;

(4) a few subject headings, i.e. 'Breeding', 'Display', 'Editorials', 'Field-characters', 'Food', 'Migration', 'News and comment', 'Obituaries', 'Recent reports', 'Requests for information' and 'Voice';

(5) 'Reviews', which are listed together under this heading in alphabetical order of authors reviewed.

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